New Hygiene Section:
This Month's Feature. . . .
Industrial Toxicology for the Safety Engineer

Safety Maintenance

AMERICA'S PIONEER INDUSTRIAL SAFETY MAGAZINE • JUNE, 1961 • 50¢
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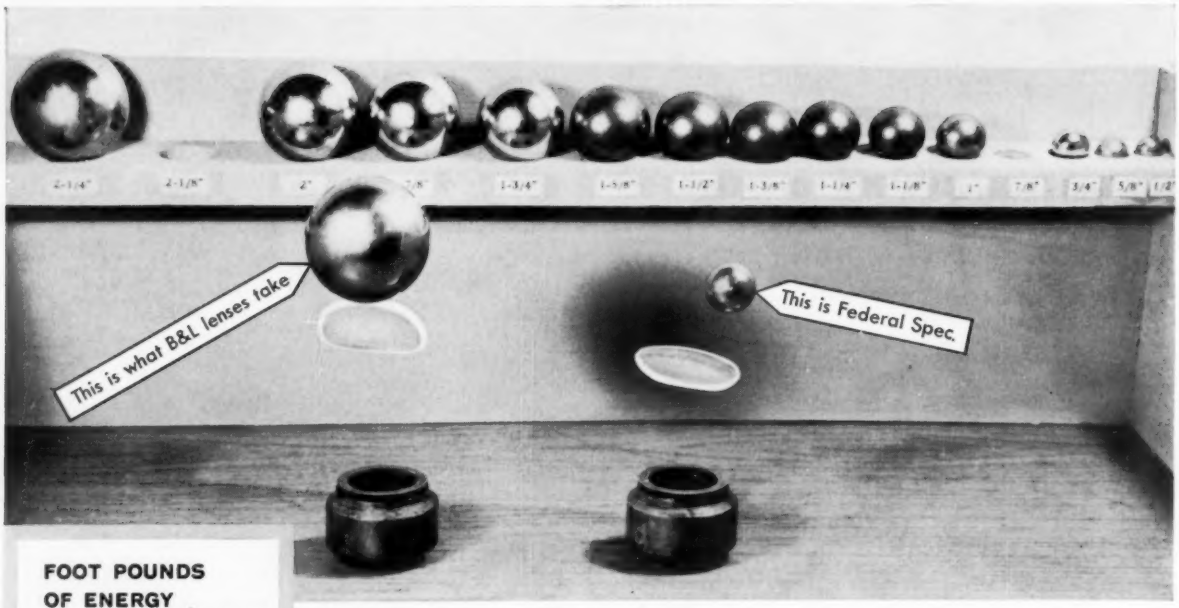

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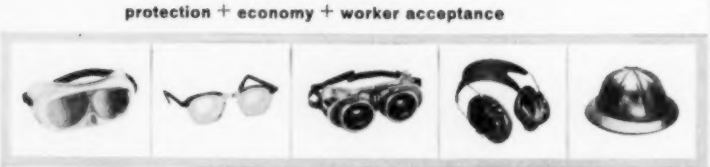

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LOSS STOPPERS

The free bulletins and catalogs reviewed below are offered by the Reader Service Department of *SAFETY MAINTENANCE*. To obtain copies without cost or obligation, write in the key numbers on the Reader's Inquiry Card.

PLANT MAINTENANCE

Tile Maintenance Guide in Spanish 257
National Sanitary Supply Assoc. Because of the steady influx of Spanish speaking personnel into the maintenance field, the poster guide on the care and maintenance of asphalt and rubber tile flooring has now been printed in Spanish for posting on custodial bulletin boards as a training aid.

Industrial Cleaner 258
Conco Chemical Co. This 4-page bulletin gives much helpful information on a heavy-duty liquid cleaner for removing grease, oil, ink, light carbon and soil from any type surface. Useful chart lists wide variety of maintenance jobs and indicates the various dilutions recommended for each.

Non-Skid Luminous Resurfacer .. 259
Monroe Co. Illustrated bulletin describes a non-slip floor resurfacing material, available in three colors, and also in a luminous yellow that glows in the dark, for increased safety on stairs, ramps, platforms and walkways.

Concrete-Embedded Steel Floors . 260
Rockwell-Standard Corp. Bulletin outlines features of steel floor plates to be installed in concrete for an extremely heavy-duty industrial floor. Pictures show how perforated design on plates creates a non-slip surface.

Engineered Maintenance 261
Puritan Chemical Co. Up-dated edition of this booklet outlines how industrial and food-processing plants can obtain a housekeeping and sanitation program engineered to their specific needs. It describes free assistance and engineering services available.

Foamed Solvent Cleaning 262
Dow Industrial Service. A new technique of cleaning industrial equipment by means of a foamed solvent is described in this illustrated brochure, which includes three case histories of the economy and effectiveness of the cleaning service.

Construction Abrasive Products .. 263
Carborundum Co. A 42-page booklet catalogs a complete line of abrasive and related products for the masonry and concrete trade. Includes concrete surfacing wheels, slip-resistant and floor hardening materials, aggregates for terrazzo and concrete floors, masonry saw blades, etc.

PERSONAL PROTECTION

Industrial Safety Catalog 264
New Jersey Safety Equipment Co. The 1961–1962 Industrial Safety Equipment & Chemical Handling Catalog, comprising some 300 pages, is now available. It covers an unusually broad selection of protective clothing, devices and equipment for general industry and for the chemical field. Comprehensive catalog is well arranged and indexed for speed and simplicity in use.

Lens Cleaning Equipment 265
Wilkins Co., Inc. Pamphlet describes how to obtain lens cleaning and anti-fogging products on a 30-day free trial basis. Prospective buyers are given a choice of three different models of lens cleaning cabinets.

New Work Gloves & Fluorescent Vest 266
Olympic Glove Co., Inc. Bulletin explains reasons for printing full weight certification date directly on canvas work gloves; and describes a new plastic-coated glove with rough gripping surface for handling wet or oily objects, and a fluorescent-red vest to make utility men, highway personnel, guards, etc., highly visible.

Radioactive Dust Respirator 267
Willson Products. Respirators for protection against radioactive dusts and other highly toxic hazards, such as beryllium, and also bacteria and viruses are described in this bulletin. Illustrations show three different models: half mask and two full facepiece types.

Life Vest 268
Davis Emergency Equipment Co. Bulletin describes and illustrates an orange-colored, oil and chemical resistant life vest made of plastic foam that is flame-proofed and keeps wearer afloat. Suitable for oil workers, logging and dock workers, dredgers, etc.

Glove Safety Catalog 269
Advance Glove Mfg. Co. Comprehensive loose-leaf catalog of safety gloves, hand pads, suits, aprons, boots, first aid equipment and other essential items for all types of industrial hazards. Includes chart of recommended gloves for various chemicals.

Improved Coated Fabric Work Suits 270
B. F. Goodrich Industrial Products Co. A new nylon-neoprene work suit is described in this bulletin as having half the weight but four times the strength of conventional

(Continued on the next page)

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JUNE, 1961 **Please send me the following free data**

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Free Bulletins (Cont'd)

coated suits. The 4-page bulletin also shows synthetic and natural rubber suits, industrial raincoats, storm suits, firemen's coats, etc.

FIRST AID EQUIPMENT

Rescue Breathing Device 271
Venti-Breather Products, Inc. Well illustrated folder describes an oral resuscitation device for application of the approved mouth-to-mouth technique without having to make physical contact with the victim's mouth or his exhaled breath. Bulletin also shows the device packaged in a pocket-pack and wall case and gives data on a training model.

First Aid Stretchers 272
Junkin Safety Appliance Co. Illustrated folder describes several types of stretchers, including a basket type, folding canvas, and complete kit, and also accessories.

Lightweight Oxygen Resuscitator 273
Ohio Chemical & Surgical Equipment Co. Informative folder outlines the features of a new, unusually compact and lightweight kit that includes a combination resuscitator-inhalator-aspirator. Also gives data on helpful accessories.

Litters, Cots & Splints 274
Frank Mfg. Co., Inc. This 8-page catalog of emergency first aid equipment includes various types of litters and cots; cases; splints for fingers, arms, and legs, etc.

MISCELLANEOUS

Fire Detector Location Survey .. 275
Falcon Alarm Co. Informative booklet shows where to locate automatic single-station fire detector and alarm units in homes, and what temperature ratings to use. Some of the information could also be applied to small industrial or storage buildings, garages, etc.

Emergency Highway Flashers 276
Selecto-Flash, Inc. Seven different models of emergency flasher lights as warnings for construction, utility, highway repair and patrol units, etc., are described in this illustrated bulletin. Includes two-way and 360-degree lights with various mountings.

What's Your Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Key Number	Subject
	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
105	Hard Hats
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
110	Safety Gloves
111	Electrical Gloves Tester
114	Welding Helmets
115	Fire Fighting Suits
117	Safety Shoes
118	Safety Boots
119	Non-Slip Boots
	FIRST AID AND HYGIENE
120	Protective Skin Creams
122	Sanitary Drinking Facilities
124	Salt Tablets
125	Resuscitators
126	Antiseptic Medication
127	Burn Medication
127A	Poison Ivy Immunizer
128	First Aid Kits & Supplies
129	Stretchers & Litters
129A	Stretcher Cases
130	Throat Medication
131	Eye Wash Fountains
131A	Emergency Showers
132	Portable Ventilators
133	Dust Collectors
135	Hearing Protectors
137	Noise Mufflers
	FIRE PROTECTION
141	Safety Cans
142	Fire Alarms
148	Watchman's Control System
149	Fire Blankets
	LIGHTING AND WARNING DEVICES
150	Alarms & Warning Lights
153	Fluorescent Lamp Guards
154	Emergency Lights
155	Truck Back-Up Alarms
	MAINTENANCE
161	Anti-Slip Waxes & Finishes
162	Floor Cleaning Compounds
163	Floor Cleaning Machines
164	Floor Resurfacing Compounds
165	Oil Absorbents
168	Ultrasonic Flaw-Detector
	LADDERS & HANDLING
170	Ladders
171	Ladder Safety Devices
172	Scaffolds
173	Work Platforms
174	Emergency Ladder Rungs
175	Safety Hooks
176	Folding Truck Steps
177	Carboy Pumps
	GUARDS
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180	Safety Tools
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184	Safety Lock-Outs
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	EDUCATIONAL AIDS
191	Safety Signs
192	Safety Awards & Emblems
193	Employee Safety Guide
195	Changeable Letter Signs
197	Safety Training Films

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Safety Maintenance

formerly "SAFETY ENGINEERING"

Volume 121, Number 6 **June, 1961**

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Cover picture by courtesy of Iron & Steel Institute's "Steelways": Hygienist tests the air behind a welder's mask.

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it's SAFE to say

● GROWTH OF INDUSTRIAL HYGIENE

As an added service to its readers, SAFETY MAINTENANCE is pleased to announce a new monthly feature section effective with this issue (see pages 33–40).

Edited by Mark M. Luckens, M.S., F.A.I.C., one of the country's recognized authorities in the field of hygiene and industrial toxicology, the new section will be broadened to give SAFETY MAINTENANCE subscribers the latest developments in this rapidly expanding field. Material of vital interest and help to safety engineers, management, supervisory personnel, industrial physicians and nurses will appear every month, giving them new trends and findings in our rapidly spreading technology . . . and in language all of use can understand!

Industry has come a long way since hygiene procedure was wrapped up only in an ancient and slightly beat-up first aid kit of doubtful cleanliness. Every phase of human welfare now is a vital part of industrial hygiene and, properly, is the concern of management plagued too often by claims settled by unrealistic and over-generous juries.

SAFETY MAINTENANCE welcomes to its staff Mr. (soon to be Dr.) Luckens whose services will be another in the long line of editorial "firsts" spanning our publishing record of more than 60 years.

● MINE SAFETY vs CANCER

Fully two-thirds of the uranium mines of the United States are unsafe for miners, according to Public Health Service officials in testimony before the House Appropriations sub-committee, as reported by the Associated Press.

In discussing the danger of lung cancer and other industrial diseases which may be ever-present in poorly ventilated mines, Dr. H. J. Magnuson, Chief of the occupational health division testified, according to the AP, that "our most difficult problem right now exists in the smaller mines." When asked by Members of Congress whether the problem is the responsibility of the Public Health Service, the Bureau of Mines or the Bureau of Labor Statistics, Dr. Magnuson was quoted as replying that "the present interpretation of the legal side is that the ultimate responsibility rests with the several states."

It is not too surprising that any offending mines are in the smaller category. Large, progressive operators long ago recognized the need for preventive techniques in dealing with the possible danger of lung diseases. General and personal ventilation equipment, as well as other forms of protective devices make our mines the safest in the world ("Pravda," please copy). If research indicates that lung cancer can get a start in our uranium mines, we are confident that the safety enterprise of both large and small mine operators in the United States and Canada will continue to function as it has in the past.

● NATION'S NO. 1 SAFETY MAN

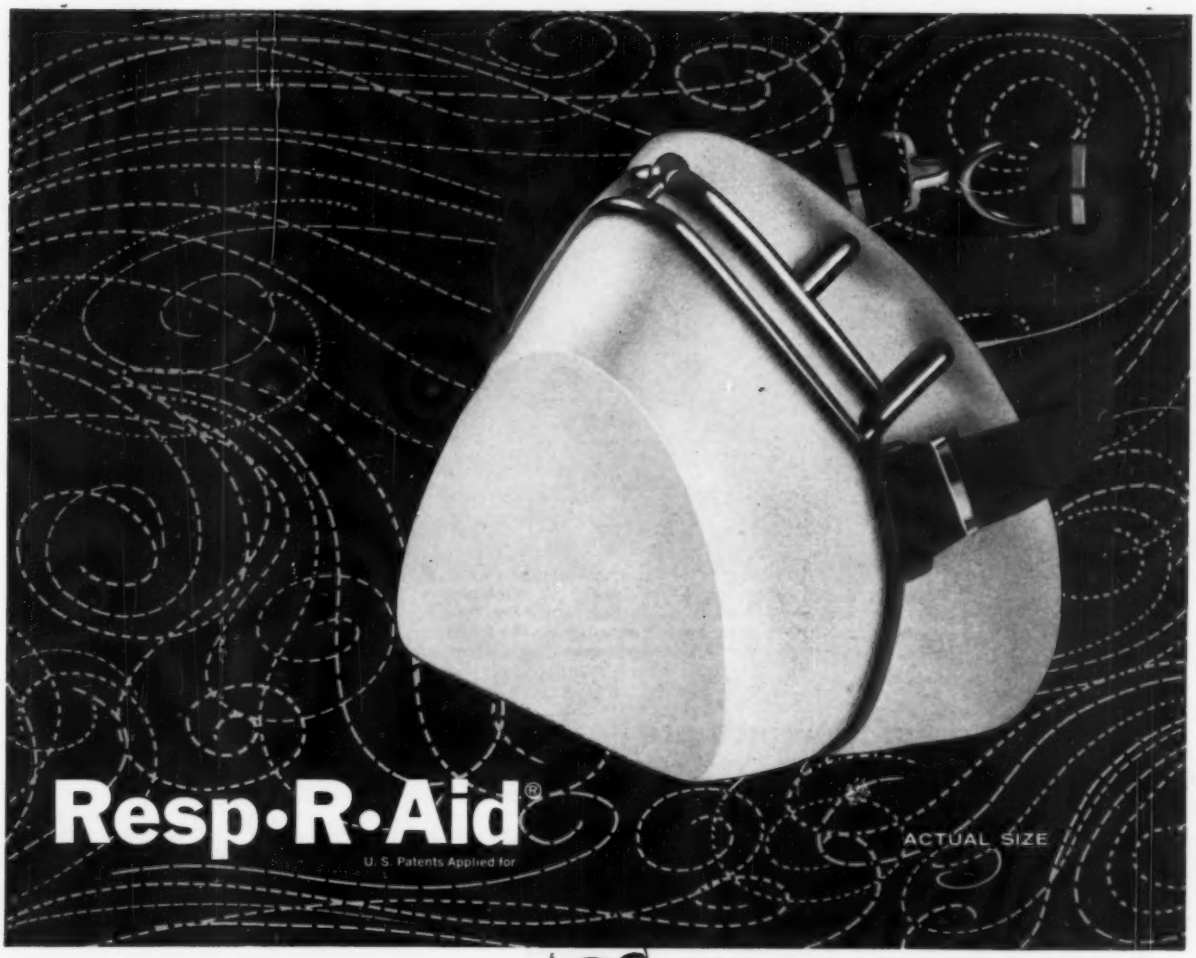
With the accolades of the entire country and even the Western world still ringing in his ears, perhaps our newest national hero, Commander Alan B. Shepard, may be totally unaware of the fact that his intrepid and happily successful exploit has given a tremendous "lift" to the entire safety movement. This is beyond all doubt both officially as well as in our personal lives.

Together with his equally trained fellow-astronauts, Commander Shepard placed his fate and perhaps that of the nation itself in the hands of safety experts whose task it was to surround him with every conceivable safeguard, thus leaving nothing to chance or "maybe."

In adding its heartfelt congratulations to those of a grateful nation now honoring Commander Shepard, SAFETY MAINTENANCE pays tribute to the many unseen guardians of safety whose contribution Commander Shepard with his great modesty and superb sportsmanship would be the first to acknowledge.

NOW—MOST PROTECTION PER DOLLAR

against nuisance dusts, mists, sprays



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Protection? Resp-R-Aid is *all* filter — more than 50 square inches of micro-porous urethane, up to 16 times greater filtering area. Thousands of interconnecting cells trap foreign particles but let air pass freely. Inhale and exhale valves assure easy breathing of fresh air. And every Resp-R-Aid is *sanitized* with bacteria-static agents.

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(For details, use Key # F-21 on inquiry card on page 1)

Greasing boom cables on a self-loader of Michigan Limestone's Bradley fleet is a job that calls for sure footing and a safety belt. These cables swing the boom over the side to give the ship its own unloading system.

Repair and maintenance are vital safety activities

Patterns in light are a common sight around maintenance work. Here workmen make structural repairs at American Steel and Wire's Central Furnaces and Docks at Cleveland.

Fit as a Fiddle For Safety

Preventive maintenance is a little like money in the bank, the hair on your head, or safety—you miss it most if you don't have it. You don't have to be broke, bald, or hurt to see the importance of repair and maintenance to U. S. Steel and its employees. Just look at the accompanying pictures of preventive maintenance activities.

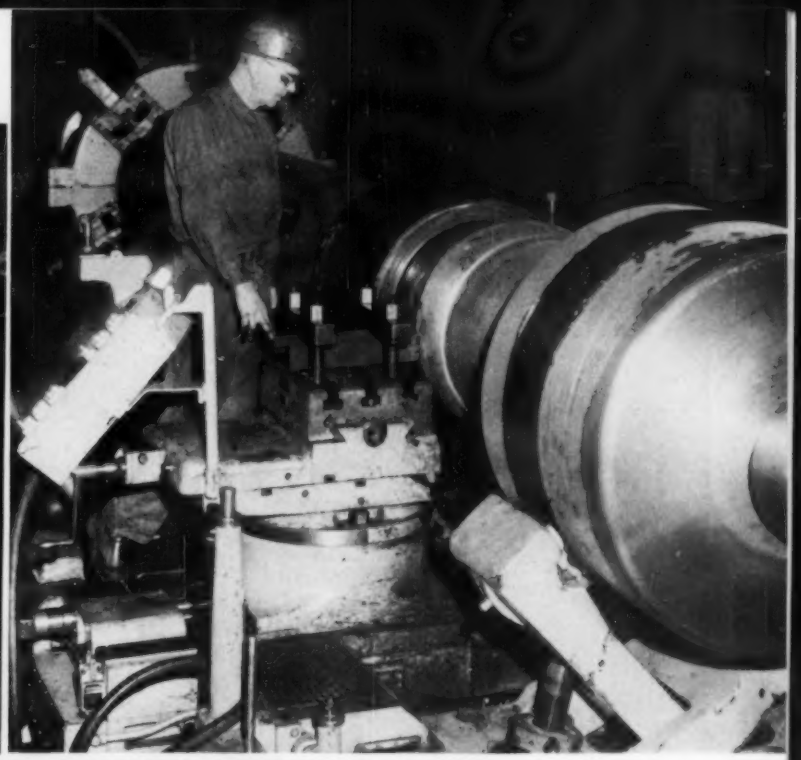
A staggering amount of time, money, and work are required to keep U. S. Steel's plants and equipment running smoothly . . . and safely. Some of this work is routine and some is spectacular. All of it is important.

Jobs that are as simple as checking the tires on a truck, or as complex as the drydocking of a 600-foot ore-carrying vessel, help keep production and accident costs down and thus mean job security for the corporation's people.

Routine jobs such as painting, cleaning, greasing, sweeping, even snow removal, are important not only to operations but to safety on the job.

Some maintenance men are detectives. They regularly test and inspect machinery that may be functioning perfectly. It is far less costly to locate trouble and fix it before a breakdown causes damage to expensive equipment and production delays by downtime. A few of the repair and maintenance jobs that keep U. S. Steel operations "fit as a fiddle" for safety are shown on this and the following pages.

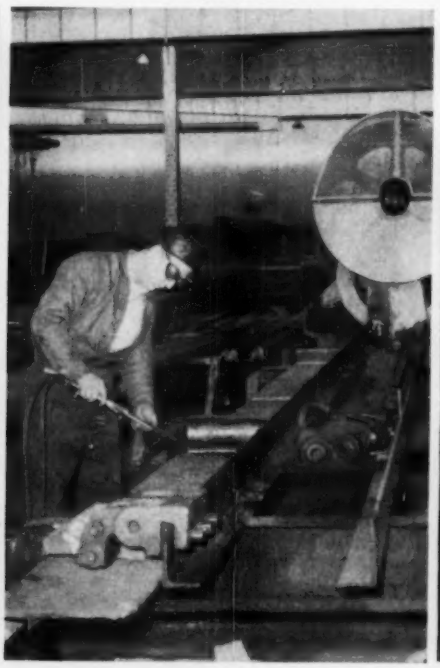
Electricians play an important part in keeping equipment in A-1 condition, as shown in this scene at a Utah mine.



Many repair jobs in steelmaking plants are sizable projects. Here a technician machines a new head for a 45" spindle broken during operations.

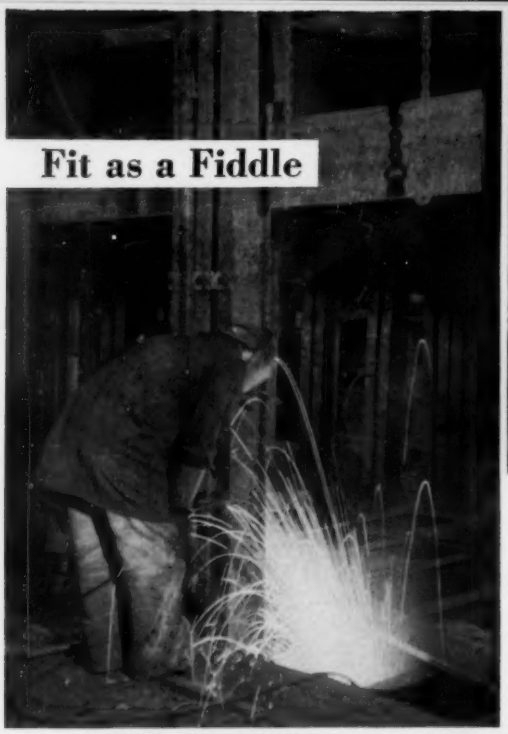
Preventive maintenance at Clairton (Pa.) works includes regular cleaning and greasing of chain on stack draft dampers of coke oven batteries.

Replacement parts help keep equipment at peak efficiency. Here a U. S. Steel technician is shown installing new rollers on an angle shear.



Welding jobs may turn up anywhere. Below, a workman repairs a raw materials bin gate at the Extaca plant of Oliver Iron Mining Division.

Fit as a Fiddle

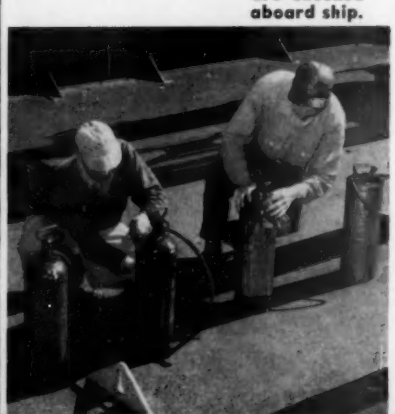


Maintenance sometimes means relining. Here a workman lances steel and slag from an open-hearth furnace.

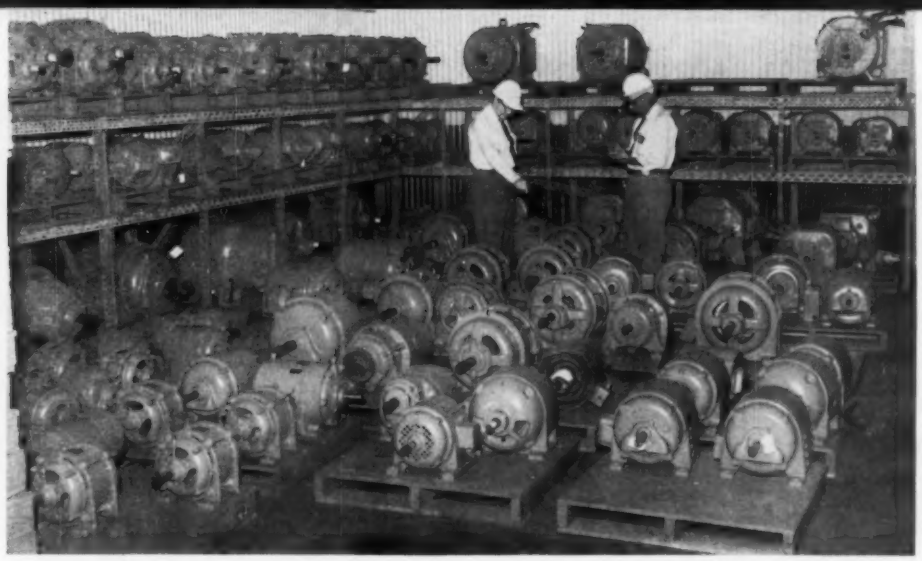
Trouble shooting at Chicago's South Works includes regular checks for cracks in the coupling of the spindle for the 44" slab mill. Such precautions avoid costly breakdowns. Workman in Gary plant checks cutting valve of a scarfing torch.

Paint on safety marking is brightened for better visibility.

Vehicles need regular service. Here brakes are bled in a tractor inspection.



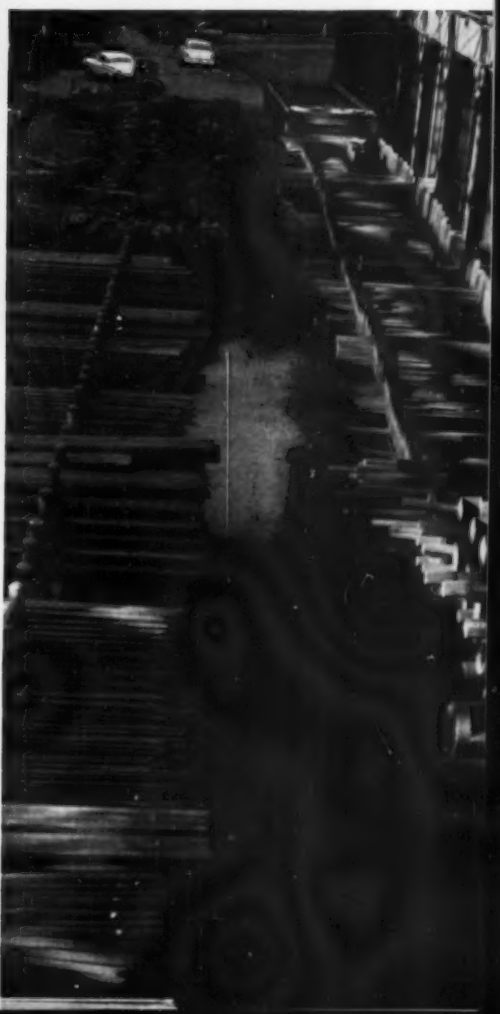
Fire extinguishers are checked aboard ship.



Electrical motors of all sizes are kept ready to replace similar units, reducing down-time.

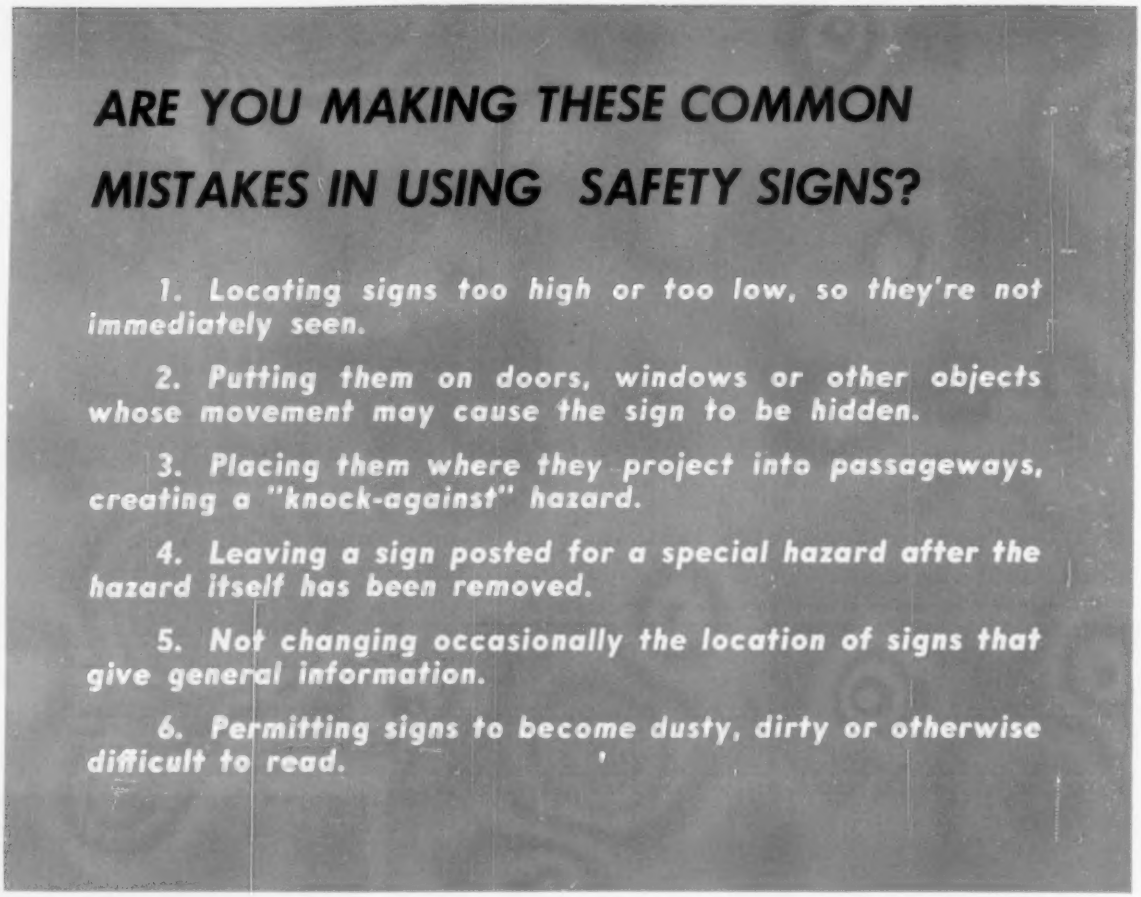
Cutting rivets on a locomotive crane is part of a routine repair job.

Maintenance yard has stocks of parts and materials to keep Chicago's South Works running smoothly.



Fatigue cracks in blooming mill part show up under ultra-violet light.

By courtesy of U. S. Steel News.


ARE YOU MAKING THESE COMMON MISTAKES IN USING SAFETY SIGNS?
1. Locating signs too high or too low, so they're not immediately seen.
2. Putting them on doors, windows or other objects whose movement may cause the sign to be hidden.
3. Placing them where they project into passageways, creating a "knock-against" hazard.
4. Leaving a sign posted for a special hazard after the hazard itself has been removed.
5. Not changing occasionally the location of signs that give general information.
6. Permitting signs to become dusty, dirty or otherwise difficult to read.

Can any safety director be sure that employees will carry the requisite "safety image" with them at all times? Hardly! Even those employees with the highest degree of safety awareness and safety conscientiousness will have lapses; and what can the safety director do about the much larger group of employees whose attitudes range from half-hearted acceptance to indifference?

SM

Sign & Signal SERIES

Other Articles:

May and July

Neither the safety director nor his lieutenants, the foremen, can police each worker all the time. They cannot be on-the-spot alter egos, hovering at each employee's elbow, to remind, cajole or kid him out of his safety mistakes. It is at this point that accident prevention signs enter the safety picture. They are the safety man's stand-in to alert employees at sites of frequent injury or areas of particular hazard.

Accident prevention signs, of course, are not a substitute for safety engineering. Hazards should be eliminated or reduced as much as possible by means of guarding devices and personnel should be protected from possible injury by means of protective equipment. But safety signs are vital in making employees doubly aware of hazards, and in reminding them to use or wear the safeguards provided.

In the past, however, safety signs that were poorly designed or incorrectly used defeated their own purpose. Home-made letterings were difficult to read; too-strong background colors added to illegibility; colors had no meaning so that signs, safety and otherwise, competed for attention; and little consideration was given to the placement of signs for their maximum effectiveness.

To bring order to this chaotic situation, the American Standards Association established specifications for industrial accident prevention signs. This safety code concentrates on the actual design and coloring of signs, but also gives valuable information on the construction materials and finishes, where to place safety signs, and how to maintain them. The material in this article is based on the most recent revision of the A.S.A. code, American Standard Specifications for Industrial Accident Prevention Signs (Z35.1-1959) and its Appendixes. The complete code, which covers the classifications of signs by use, sign design and colors, sign wordings, and sign lettering, is available for $1.50 from American Standards Association, Inc., 10 East 40th St., New York 16, N. Y.

Need for Uniformity

As the Standard points out, for maximum safety, reaction to signs should be automatic and it should not be necessary to stop, read and analyze the meaning of each particular warning. Reaction to signs will become automatic if certain types of signs are posted for certain purposes. Also, persons who cannot read English will learn to recognize and be warned by standard sign designs and colors.

Sign uniformity is of great importance. When all concerns use signs of definite design and color to warn of particular hazards, to express caution, to provide general information, or to point out directions, the use of accident prevention signs will be more effective. These practices have resulted in workers becoming

For safety sign colors and designs, see next page ▶

familiar with the necessary sign designs, no matter where they work. Confusion with unfamiliar signs is avoided. Uniformity is also important from the viewpoint of workers who are colorblind, since, even though they may not be able to distinguish readily between colors, they are able to realize the significance of familiar designs.

Correct Sign Placement

The selection of locations and positions of signs is important. A sign chosen to carry the required information should be so located that it is legible to all concerned, but should not create distractions.

▶ Generally, signs should be placed slightly above eye level. Other levels, however, will be advisable at times.

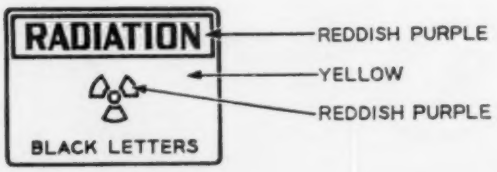
▶ Signs should be placed sufficiently ahead of a particular hazard to allow anyone coming in view of the sign to have time to heed the warning before encountering the hazard. This distance will vary. For example, signs warning against the touching of switches or other electrical equipment should be placed close to the equipment; signs used in plant yards, on construction, or at radiation locations should be placed sufficiently in advance of the danger zone to permit the warning to be perceived before the danger zone is reached.

▶ All signs should be so located that they do not create a hazard in themselves. Examples of such hazardous signs are those projecting into passageways at such heights that persons may strike against them.

Classifications of

DANGER SIGNS should be used only where an immediate hazard exists. There should be no variation in the type of signs posted to warn of specific dangers and radiation hazards. The colors for danger signs should be red, black and white.

All employees should be instructed that danger signs indicate *immediate* danger and that special precautions are necessary.



Radiation Warning Signs are a special type of danger sign. The background should be yellow; the title panel, reddish purple with yellow letters; the symbol, reddish purple; and any letters on the yellow background should be black. The radiation symbol should be positioned with one blade pointed down and centered on the vertical axis.

INFORMATIONAL SIGNS should be used where it is advisable to convey general information on subjects not necessarily of a safety nature but which may help prevent confusion and misunderstandings. Examples might include signs for offices, entrances, toilets, locker rooms, etc. Blue should be the standard color for informational signs. It may be used as a background color for the complete sign or as a panel at the top of a white sign with such headings as "Notice."

CAUTION SIGNS should be used only to warn against potential hazards or to caution against unsafe practices. The background would be yellow; and the panel, black with yellow letters.

All employees should be instructed that caution signs indicate a *possible* hazard against which proper precaution should be taken.

▶ All signs should be located in such a manner that they or their supporting structures do not constitute a safety hazard.

▶ All signs should be so located that they are readily visible. Ordinarily they should not be placed on movable objects, such as doors, windows, and racks, where a change in position would void the purpose of the sign. Where natural light is insufficient, artificial lighting should be provided. Glare should be avoided.

▶ Signs should not be moved unless the changes in location are beneficial to the purpose for which they are intended.

▶ One exception to the rule about keeping signs in the same place is a sign used to convey general information or safety thoughts. It may be advisable to change the location of these signs from time to time to renew interest in the sign message.

▶ All signs should be removed whenever the information they contain is no longer in effect. Such practice is especially important regarding signs which warn of specific temporary dangers. When the danger ceases to exist, the sign that warns against it should be promptly removed. For example, signs warning of men working above should be removed immediately, when the overhead job is completed. Failure to do this may induce disrespect for all signs.

▶ Signs should be inspected regularly and maintained in good condition. They should be kept clean, well illuminated and legible. Damaged or broken signs should be replaced immediately.

Sign designs by courtesy of American Standards Association, Inc. Photograph by courtesy of Bausch & Lomb, Inc. and Stromberg-Carlson Div., General Dynamics Corp.

Safety Signs

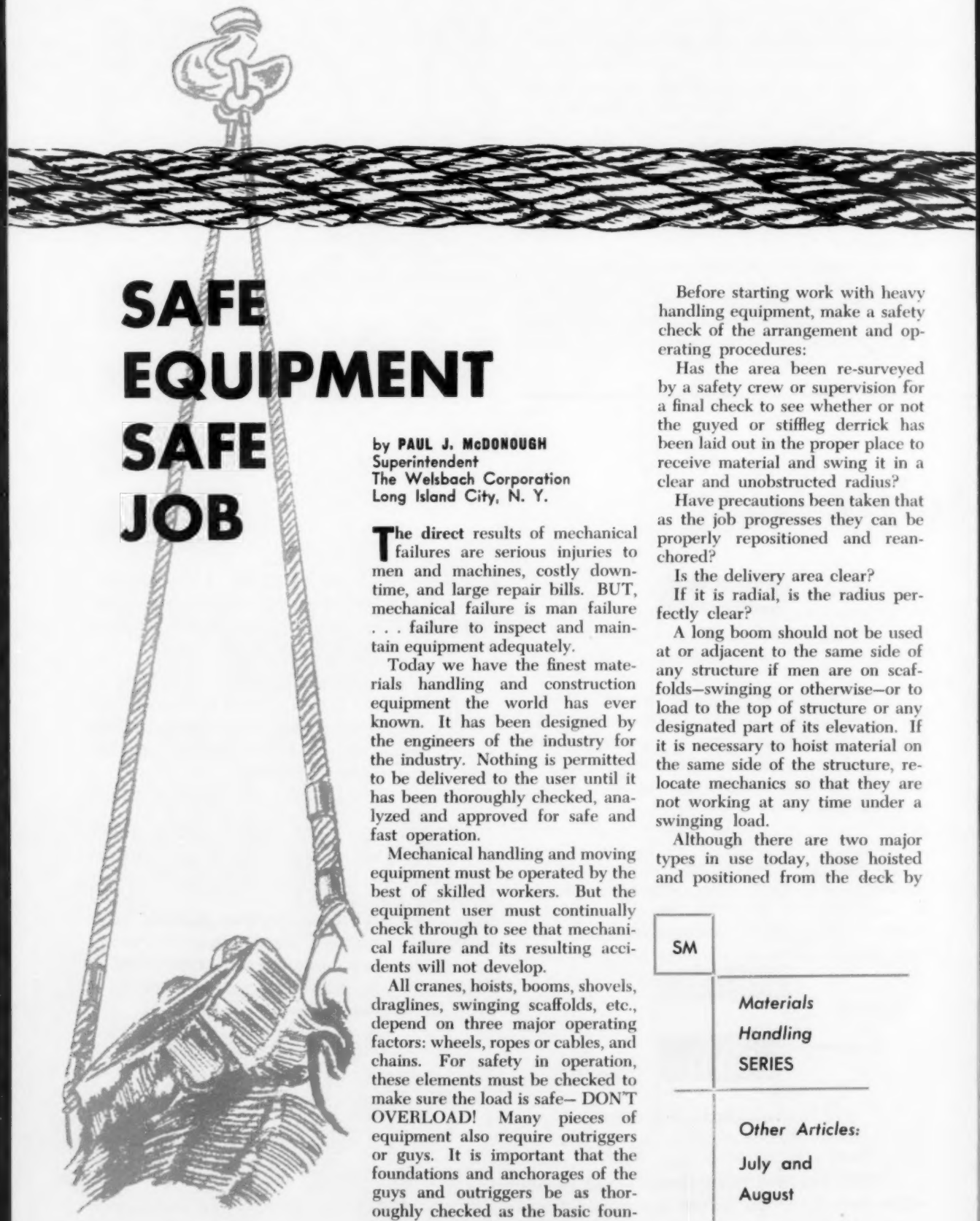
DIRECTIONAL SIGNS should be used to indicate the way to locations such as exits, fire escapes, stairways, and first aid rooms. The background should be white; and the panel, black with white directional symbol. Any letters used on the white background should be black.

Exit Signs are a special type of directional sign marking the actual exits instead of indicating the way to reach them. The word "Exit" should be written in plainly legible red letters on a white background, with the principal strokes of each letter at least ¾ inches wide.

SAFETY INSTRUCTION SIGNS should be used where there is need for general instructions and suggestions relative to safety measures. The signs may be headed by such words as "Think" or "Be Careful." The background should be white; and the panel, green with white letters. Any letters used against the white background should be black.

INDUSTRIAL TRAFFIC SIGNS for the safe and orderly movement of vehicles and pedestrians on plant property should conform to the standards for traffic signs used on public thoroughfares.

DO NOT START TAGS should be used to prevent the attempted operation of machines or equipment during maintenance, change-over, or other down-time situations. They should be placed in a conspicuous location or in such a way that they effectively block the starting mechanism. The standard background color for these tags should be red. Letters should be white or gray, or etched into metal provided that a sharp and long-lasting contrast results.



SAFE EQUIPMENT SAFE JOB

by **PAUL J. McDONOUGH**
Superintendent
The Welsbach Corporation
Long Island City, N. Y.

The direct results of mechanical failures are serious injuries to men and machines, costly downtime, and large repair bills. BUT, mechanical failure is man failure . . . failure to inspect and maintain equipment adequately.

Today we have the finest materials handling and construction equipment the world has ever known. It has been designed by the engineers of the industry for the industry. Nothing is permitted to be delivered to the user until it has been thoroughly checked, analyzed and approved for safe and fast operation.

Mechanical handling and moving equipment must be operated by the best of skilled workers. But the equipment user must continually check through to see that mechanical failure and its resulting accidents will not develop.

All cranes, hoists, booms, shovels, draglines, swinging scaffolds, etc., depend on three major operating factors: wheels, ropes or cables, and chains. For safety in operation, these elements must be checked to make sure the load is safe– DON'T OVERLOAD! Many pieces of equipment also require outriggers or guys. It is important that the foundations and anchorages of the guys and outriggers be as thoroughly checked as the basic foundations under the equipment itself.

Before starting work with heavy handling equipment, make a safety check of the arrangement and operating procedures:

Has the area been re-surveyed by a safety crew or supervision for a final check to see whether or not the guyed or stiffleg derrick has been laid out in the proper place to receive material and swing it in a clear and unobstructed radius?

Have precautions been taken that as the job progresses they can be properly repositioned and reanchored?

Is the delivery area clear?

If it is radial, is the radius perfectly clear?

A long boom should not be used at or adjacent to the same side of any structure if men are on scaffolds–swinging or otherwise–or to load to the top of structure or any designated part of its elevation. If it is necessary to hoist material on the same side of the structure, relocate mechanics so that they are not working at any time under a swinging load.

Although there are two major types in use today, those hoisted and positioned from the deck by

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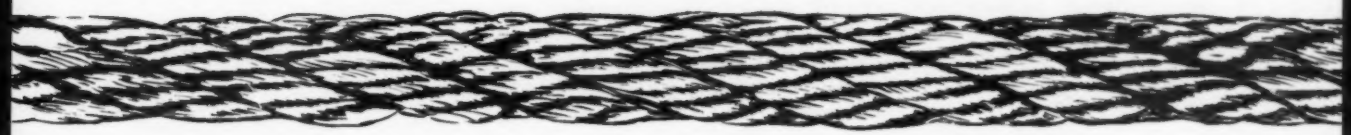
Materials Handling SERIES

Other Articles: July and August



either fiber or steel rope, most of them use single steel suspension with the hoisting drum on the scaffold itself. They need a good outrigger at the top of the structure or suspension point.

From the first day of operation—the equipment should be thoroughly checked again by people who know their business to make sure that there has been no damage in handling and no skips in re-erection. All failures are progressive. Therefore after the first day's use, a thorough inspection should be made of all the check points that the manufacturer has suggested: **How is the oil level—or other lubrication points? . . . Are the points of stress cleaned and checked? . . . Is there cement, grime or any other kind of abrasive or injurious material in or at possible points of wear?**

Ropes

Rope in itself is a machine that, like the wheel, goes back many years into ancient history. Again like the wheel, it has seen many refinements and improvements both in type and material. Today our wheels, gears, sprockets, pinions, sheaves . . . are still the same wheel—very much improved and made expressly for the work it is to do. The vines and/or grasses that were the cordage or rope of the ancients have now been vastly improved to the point that the fiber of today's rope is the result of selected breeding and/or growth. It is grown in various soils in many parts of the world for one use, prime rope. Similarly, the steels of today's wheels and cables are the result of much study and experimentation in the right alloying of metals.

All the producers of rope or cable—whether it is fiber or steel—are very proud of their top-grade products. It is standard practice to color one or several strands with a definitely hard-wearing coating or impregnation or to weave a paper marker into the rope and then to advertise and sell it as "Blue Marker," "Yellow Strand" or some such trade name. All these ropes and cables are identified on the shipping tags as meeting all the specifications of the A.S.M.E. or other recognized technical association. The manufacturer issues a manual on the proper handling—right from the initial uncoiling to inspection, storage, use and maintenance. The manual can be used as a standard in the care and treatment of ropes. Following is an outline for the correct care and use of rope.

When opening a new coil of fiber rope or reel of steel cable, the instructions on the tag should be carefully followed. After the outside wrapping has been removed, in the core or eye there will be found the lead end for uncoiling fiber rope. The manufacturer's directions on the shipping tag or in his manual should be followed to a "T" because any unnecessary twisting, kinking or unlaying of this rope or cable decreases the strength way below its certified strength as given in the manual. There is no code or safety chart to make damaged cable usable except in the case of hemp

TABLE 1:

Tips on Care & Use of Ropes, Cables

Manila, Hemp, or, Fiber Rope:

1. **If possible, protect rope from the weather at all times. Never use, move, or handle it when it is ice-coated or frozen.**
2. **Wet rope should be hung or stored on platforms in a cool, dry place away from heat and in loose coils so that air may circulate freely around it.**
3. **Store ropes in places where grit, abrasives or heavy dust cannot settle on it, and away from acids, chemicals or anything corrosive in nature.**
4. **Before using a rope, check it thoroughly for:**
   a. **A clean odor,**
   b. **No trace of mildew,**
   c. **No powdering-off or broken fibers on the outside,**
   d. **No powdery substance, loose material or discoloration in, on, or between strands when the rope is unlaid with the two hands. If by blowing on it, dust or fine particles tend to mix with the air, condemn the rope! Such a rope would not be fit for use anywhere near its original strength and would be a hazard on any job site.**

Steel Cables:

1. **For running cables, use the correct size of rope to fit the sheave and groove—to prevent distortion and excessive wear.**
2. **Never use a dry cable; be sure it is lubricated.**
3. **Check cables regularly for wear, broken wires, untwisted strands, flat spots (denoting wear), kinks, and abrasions.**

which can go back to the jute mill or—in the case of steel cable—possibly to end its working days as a blasting mat. Table 1 gives suggestions for the inspection of rope and steel cables.

Hemp, manila or fiber rope is very seldom used in machine operations; it is used today for manual operations.

Steel Rope

Steel rope is the machine or power-operated rope—eight times stronger than fiber rope, it can be used under greater stresses and at far higher speeds. As is listed in the manufacturers' care manuals, we are far better off when we buy the proper type and size of steel cable for the job on which it is to be used. Generally, guys and fixed cables can be of a less flexible nature than running cables. A running cable should only be used in the proper size sheaves to allow for its proper bending, in the proper width groove so that it does not distort, unlay or create extensive wear to itself or to the sheave it is reeved over. It should never be used dry and should always be kept properly lubricated because each wire and each strand of each cable—no matter how it is laid up—is a moving part in its own right.

Use Correct Size

The whole make-up of a steel cable is designed for a known shift each time it is bent and each time it runs over or around the proper size sheave and groove. If the sheave or groove compresses the cable or lets it expand and run in shapes that it was never meant to do, the Safety Code has been violated and cable failure has started. **The practice of using the right cable with the wrong sheave groove or the wrong size sheave makes for three things wrong. Every time a cable, a sheave or a sheave groove is used, the three components must be perfectly right for each other or the three must be classed as being wrong. You cannot be 33 or 66% right—you must be 100% right. Then you are operating in the only safe manner.**

Steel cable should be checked regularly for wear and deterioration. Set up a system to make these checks regularly by competent personnel—and you will cut your accident rate!

The sheave should be very carefully inspected for wear marks and perfectly round and smooth. If it bears marks or indentations from previous use, it should not be used with new cable because the bed that is uneven is just as injurious to the cable as if it were the wrong size. These sheaves should be replaced immediately with the proper size to suit the job it is to perform. The drum for operating a cable should be smooth, lubricated, free from rust spots and should be of a size to suit the proper bending of the cable. The fleet angle should be long enough, properly controlled, free from obstruction to allow the cable free-winding as it traverses the drum—whether on a lift or pull or being stored at the end of the operation or the day's work.

New Developments

The mechanical equipment industry is continually expanding. New machines or machines that have been made over to do a specific job are continually being developed. Often these machines can improve our safety work conditions. For example, we had had a very bad accident record while using the stiffleg tripod boom on the rear of our trucks for pole erection. The tripod boom was carried in the side compartments in standard utility trucks. Arriving at a job site, it was assmbled on the ground and hoisted into position with the winch cable. Two of the legs were anchored at the outside rear of the truck and the third component was positioned inside the body of the truck and pinned to the truck bed. We had many injuries in handling this type of boom—broken fingers, strained backs and rupture and/or hernias. Then the hydraulic boom was developed which folded over the top of the truck, anchored from the top rear and folded down over the cab for storage and transportation. This boom could be controlled from the rear of the truck with the job at hand in full view of the operator as against the series of hand signals and/or whistles or bells to the driver, as was necessary with the stiffleg.

Since the installation of these hydraulically operated booms, we have not had even one minor injury as the result of their operation. We believe that this was a forward step in the protection of our employees from any injuries or lost time because of antiquated equipment.

From an address presented at the 30th Annual Greater New York Safety Convention.

Allis-Chalmers Puts New Life in Safety Program

Allis-Chalmers special campaign for total safety entered its fourth year in February with a new approach aimed at further stimulating family participation.

Basic elements of the program to run for 12 months consist of strings of pennants with safety messages; diamond standards with a monthly message; posters in all operating areas, and monthly safety folders to all employees.

A new incentive, a safety quiz in each issue of the monthly folder, generally requires family participation to obtain over-all answers.

Five awards are drawn from completed entries each month with the winning employees contacted at their place of work. Those able to identify the current safety message are awarded three silver dollars plus an additional dollar if they are wearing safety shoes.

Homes of employees winning awards at work are contacted by phone. If the person answering can identify the current theme, a $5.00 prize is mailed to the home. The supervisor of the winning employee also receives a silver dollar if he is wearing safety glasses and safety shoes and knows the message.

The February theme was "Dress Safely—Everywhere . . . all the Time." Other subjects to be featured during the year are good housekeeping, child safety, preventive maintenance, vacation safety, home work shop safety, infection prevention, electrical hazards, driving safety, and personal safety.

Films Bolster Safety Program

Industrial injuries are responsible for an annual loss of 230 million working days in the United States. This has resulted in the expanded use of instructional films to help reduce the staggering drain on the country's human and economic resources.

● They play expanding role in reducing huge industrial loss from accidents.

● An insurance firm attacks problem with 750 film presentations annually.

Industry is employing every available facility, including commercial film companies, to produce films pinpointed to the most frequent causes of industrial accidents.

"This growing awareness of the

Right—Man from Mars? This worker illustrates some of the safety apparel used to prevent industrial accidents.

Left—One of the most prevalent causes of industrial accidents, falling objects account for 1/10th of deaths.

Lower Right—Makeshift "ladders" are a prime cause of accidents in plants and factories. Safeguards can cut rate.

Lower Left—Carelessness resulting in accidents cuts directly into production output of plants and factories.

HAZARDS DRAMATIZED: Typical Scenes from Safey Films

effectiveness of film as a prevention device has brought about significant changes in plant safety programs," says Carl J. Ross, vice president of International Film Bureau, Chicago, a leading producer and distributor.

D. A. Rundquist, a supervisor of accident prevention for Employers Mutual Casualty Company of Des Moines, indicates that insurance firms, with their obvious interest in plant safety, are one of the largest distributors of filmed messages. His company's safety engineers exhibit about 750 films annually at industrial safety meetings. The firm has established its own library of safety films and supplements it by procuring additional films from associations and commercial companies.

"We feel that films are a major force in the prevention of industrial accidents," he said, "and we use them at all the safety meetings which we conduct with industry and trucking fleets."

Mr. Rundquist cited a firm in the Chicago area as an example of the effectiveness of film in attacking the injury problem. The company had a high rate of accident frequency before monthly film presentations were introduced. After establishing a program that features one safety film every month, the casualty rate was cut sharply.

"There now is an average of only one accident in the plant in each two-month period," Mr. Rundquist reported, "and there has been a proportionate reduction, of course, in the number of working hours lost."

Donald Dodson, manager of the engineering department of Aetna Casualty & Surety Company, Chicago division, said many of his company's films deal with accident prevention or loss control. They have been developed to deal either specifically or generally with hazards in industrial, construction, or fleet operations.

Mr. Dodson stated that films are used extensively in Aetna's Safety Training Course for Plant Supervision, developed to train supervisors to discharge effectively their safety responsibilities.

When carefully selected and effectively presented, films play an important part in any effective loss control program.

"Then he foolishly stuck his arm in—not realizing someone might pull the switch over there—"

Studies by International Film Bureau, according to Mr. Ross, show that safety engineers regard films as the most effective way to bring home a vital message. They believe visual impact permits strong personal identification with the accident situation. The impressions gained from the film generally are more vivid and permanent than spoken or written messages.

"A program with lasting impact is essential in view of the annual loss of 230 million working days in industrial accidents. This, in dollars and cents, means a cost of $65 per worker," Mr. Ross emphasized.

Industrial accidents in the last decade have cost industry a monumental total of 2.3 billion days, equal to an eight-month shutdown of all U. S. manufacturing plants, according to National Safety Council statistics. The Council has stressed the fact that companies with realistic safety programs consistently have the lowest accident rates.

How should industrial firms, especially small companies with little or no previous experience in this area, organize their visual programs? International Film Bureau recommends these procedures:

1. **Seek professional counsel before determining whether you want to produce, purchase or rent safety films for use in your plant.**

2. **Plan meetings where films will be used, and decide on the objectives you want to accomplish.**

3. **Prepare the audience in advance in order to amplify the impact of the films.**

4. **In addition to your film programs, be sure to include the safety theme as part of all supervisory meetings.**

5. **Investigate the desirability of producing safety films designed to attack specific problems.**

Timing is important. Many plants, according to International Film Bureau, show safety films at the start of the working day. Others work their presentations into the company lunch hour. In this instance the safety message normally is added to educational or travel films. This combination is recommended to assure good attendance and avoid possible resentment.

An example of a safety film related to a specific problem in the manufacturing industries is "Punch Press Guarding," sponsored by Industrial Accident Prevention Associations of Ontario. One of the virtues of this film is brevity; it delivers its message in 11 minutes. Another 13-minute film emphasizes that many industrial accidents not only injure the operators involved but endanger the lives of their fellow workers as well. Other films cover correct use of machinery, proper lifting procedures, common causes of falls, safe attire for use around certain types of machinery, use of artificial respiration, and general first aid treatment.

Industrial safety engineers usually enlist the help of producers and distributors, Mr. Ross reports, to learn what films are available to initiate a planned program and sustain worker interest in it.

He said many companies produce their own films and frequently exchange them with other firms or make them available through film producers and distributors.

"They really owe it to industry to appraise other companies of their activity. Wide circulation of these films benefits a great number of people rather than comparatively few. In this way, the individual company helps to provide industry with another life-saving weapon," Mr. Ross concluded.

Pictures by courtesy of Attitudes, Inc.

PHONE KEEPS SAFETY CONTACT IN HAZARDOUS AREAS

Top priority has been assigned to improving communication between work in groups in blast furnace areas of Republic Steel Corporation. The move was planned to increase efficiency of manufacturing operations and maintenance projects, and to improve safety controls affecting both.

In addition to extensive standard telephonic communication, the system utilizes sound-powered wire units that maintain direct voice contact with workers in remote areas where toxic hazards may exist. This sound-powered communication has proved particularly effective in areas where conventional telephones are impractical, either because of working conditions or because of infrequent use.

One of the first Republic Steel mills to supplement its standard telephone network with the sound-powered wire units was the Gadsden Plant in the Southern Steel District. This installation was made early in 1959 when E. L. Jones, blast furnace superintendent, suggested to M. C. Cunningham, safety supervisor, that "information be obtained on a suitable communication system for use between work groups in blast furnace areas where regular telephones are not available."

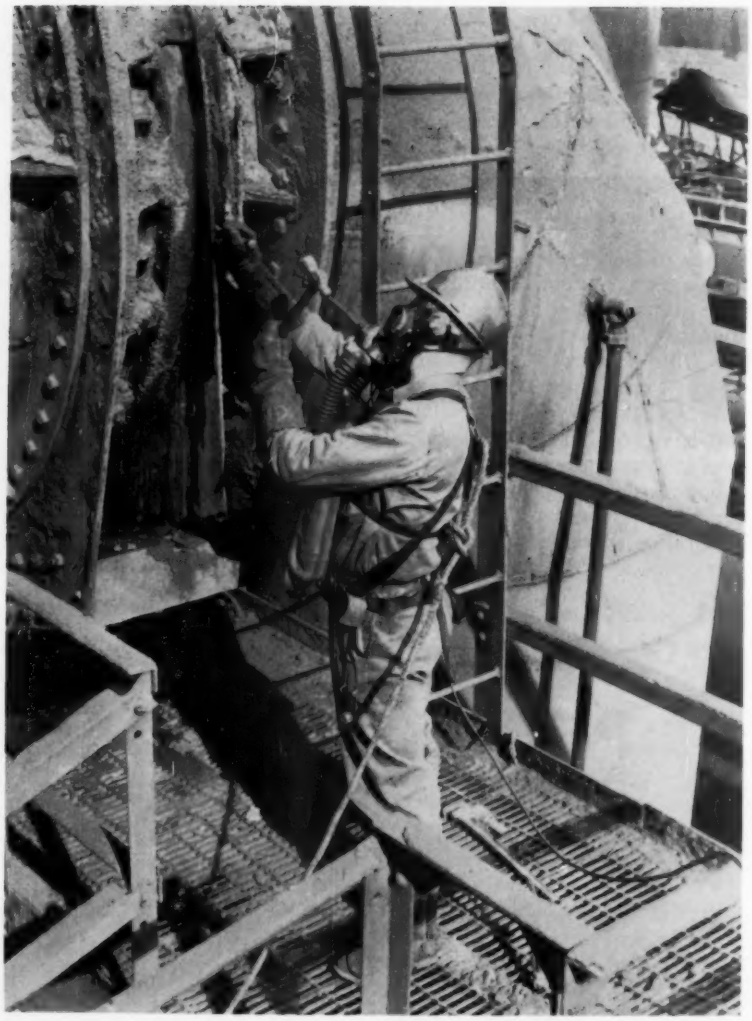
Shortly after, tests were made, and the gas-mask telephone units were put into immediate use. In fact, a number of the sound-powered systems, are installed at the Gadsden plant, and several are being employed at other Republic Steel plants.

Safety Supervisor Cunningham said the self-contained units are being used in gaseous areas at Gadsden to carry on two-way voice communication with watchers assigned to jobs where vision is ob-

As shown in this photograph, a sound-powered system is employed for point-to-point communication in gaseous blast furnaces at Republic Steel.

As illustrated here and above, voice contact is maintained through a telephone unit in the workers mask.

A blower employs the sound-powered system as a secondary means of communication in areas where toxic hazards exist, such as top of furnace.



Four-way protection for this goggle valve maintenance worker is just one of the safety measures employed by Republic: hat, mask, phone, lifeline.

scured for any reason. He also commented that the equipment is employed for point-to-point communication around blast furnaces, where it is also necessary to use breathing apparatus.

Mr. Cunningham said the unit is usually employed with an oxygen breathing apparatus, equipped with an all-vision facepiece and clear-tone speaking diaphragm, but is also available for communication without masks.

He said the device has proved an effective method of secondary communication from furnace top to cast shed or ground in rare instances when permanent telephones became useless during repair projects. "In fact," he said, "it was this particular activity that prompted the request for a 250-foot long cable with the units, instead of the standard 125-foot reel." He said the system has considerable value where work is in progress on furnace elevations and no other method of

(Continued on page 55)

Head protection, the mask communication system and oxygen breathing apparatus help in safe maintenance of gas mains.

A thermocouple is keyed to a gas main by a life-lined worker equipped with a sound-powered voice communication system in his breathing apparatus.

SM GOES TO the 31st New York Safety Conven...

New York City was once again host to the nation's safety, fire and hygiene experts when the 31st Annual Greater New York Safety Convention and Exhibition was held during the week of April 10–14 at the Statler Hilton Hotel. Sponsored by the Greater New York Safety Council with the cooperation of numerous government and private agencies dedicated to the cause of accident prevention, the meetings and display area attracted thousands of representatives from mammoth corporations and small concerns—all seeking the latest information on safety techniques and safety products for use in their own plants.

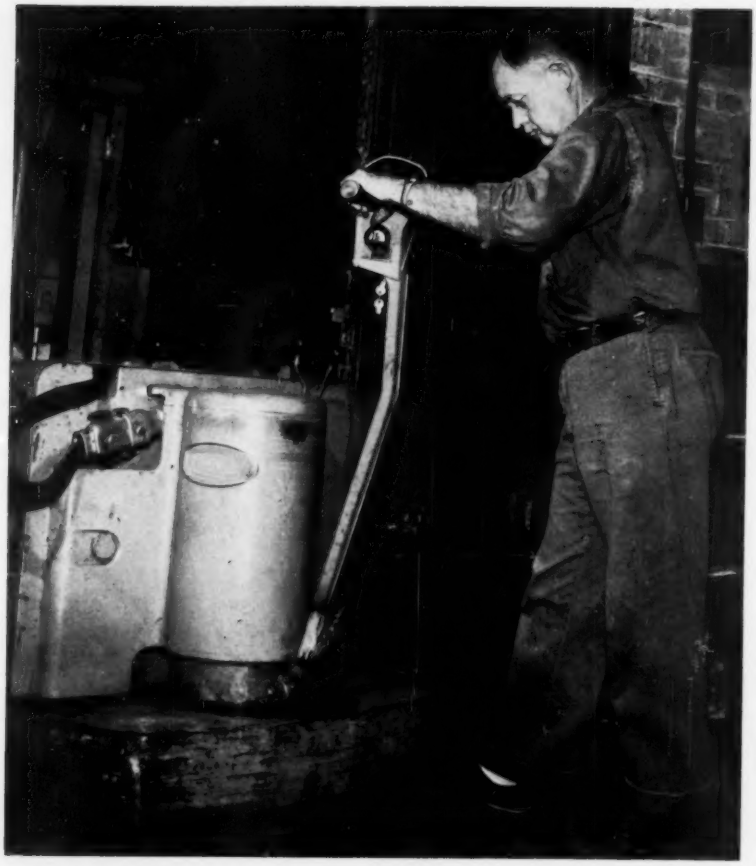
During the five-day conference, meetings and round-table discussion groups tackled health, fire and accident problems encountered in a wide range of industries and also hazards of highways and homes.

The multi-million dollar safety industry put on a display of the latest technological advances in accident prevention, disaster control and safety devices. The exhibits filled ninety booths in the mezzanine exhibit hall of the Statler Hilton.

Among the dramatic new exhibits this year was a life-sized radioactive mannikin to demonstrate the latest instruments for radiation detection. The dummy had several radioactive sources imbedded in parts of its anatomy. A series of flashing lights and clicking sounds in the measuring instruments indicated the sources of radiation in the mannikin. There were also several other exhibits in the field of radiation safety.

Another exhibit showed a fire-fighting sled of the type used by the Navy at its McMurdo Sound base in Antarctica. Because of the intense cold and lack of precipitation

Another Injury Checked



Safety Shoe Saves Trucker's Toes

Safety shoes are a necessary item of protective equipment in many phases of industrial operations, but particularly for personnel engaged in the handling and transportation of materials. The picture shows an employee of the Westinghouse Electric Corporation's Lamp Division in Bloomfield, N. J., reenacting an accident in which his foot was caught between an electric hand truck and the bridge edge. Because of the protective steel toe cap in his safety shoes, the accident did not result in any injury to the employee.

Picture by courtesy of Westinghouse Electric Corp.

in the South Polar region, water cannot be used for fighting fires. So the Navy uses this type of fire sled, to which is attached a tank with 500 pounds of dry chemical which can be expelled through hose lines and nozzles by nitrogen stored in a 400 cubic foot cylinder.

In addition to a wide variety of protective clothing—ranging from hard hats in a variety of styles to crush-proof footwear and including such striking apparel as fluorescent red vests to increase the visibility of persons directing traffic or working in other hazard areas—this year's show featured a device for testing protective gloves for damage or deterioration. This enables electric utilities to keep a constant check on the life-saving efficiency of the rubber gloves used by high voltage linesmen. It also enables industrial plants to guard workmen handling acids and other dangerous chemicals against leakage in their gloves.

Such old standbys of accident protection as safety ladders were shown in new models with built-in safety. In the field of safety education there was a new series of transparencies for use in driver education and training. These transparencies are used to orient motorists and truck fleet supervisors in proper responses and attitudes to varying road and psychological hazards.

Manufacturers of fire engines and other fire-fighting equipment were among the exhibitors, along with sight conservation and driver testing devices, machine guards, flashing signals and warning devices, automatic alarms and all sorts of other developments produced as aids to the reduction of accidental deaths or injuries.

Safety Discussions

Following are highlights from some of the addresses presented by safety experts at the general sessions and specific-subject meetings.

The most dangerous equipment used in shipyards also receives the most abuse, according to H. L. Adams, supervisor of safety of the Bath Iron Works Corporation, of Bath, Me. He said the maximum hazards came from acetylene torches, hoses and storage tanks.

"Nothing commonly used in shipyard operations can raise more hell and at the same time commit more mass injury than 'acetylene on the loose' under the right circumstances," said Mr. Adams in addressing the convention's shipbuilding and ship repair session.

Acetylene explosions, which frequently set off fires, are caused most often when faulty equipment or careless handling permits an accumulation of the gas in the air of a room, compartment or other confined area. Mr. Adams said that closer supervision and safety training of workers, stricter rules for the handling of such equipment, and frequent inspections of equipment could reduce the number of such accidents. But he added:

"I am not a confirmed pessimist, nor one who is entirely without hope, but the complexities of the job of keeping this chemical under complete control is practically beyond our collective abilities. The worst of it is that it (the acetylene explosion) will happen again in spite of all the ingenuity, rules, etc.,

that we can come up with in an attempt to prevent it."

A new system of overhead distribution being installed by electric light and power companies in several areas is reducing the number and duration of power failures during storms. The system, and some new hazards it has brought to electric utility workers, were described by George A. Ewald, distribution plant engineer of the Public Service Electric and Gas Company, of Newark, N. J. He said that the wet snowstorm of March, 1958, had brought "to a decisive climax the company's feeling that, for today's electrical living, customers should no longer be subjected to the long service outages (interruptions) that have usually followed disastrous storms." As a result of studies by a special task force the company adopted two years ago a new type of uprights and installations for all new construction and reinforcement work.

Last year's hurricane Donna proved the advantages of the new system, said Mr. Ewald. Areas where the new type of distribution had been installed suffered fewer and shorter interruptions of power. The new type of construction has a number of safety advantages over the old but has also introduced some new hazards which must be recognized and guarded against.

One of the newest and least known industrial hazards of the new chemical age was described by two scientists of the U. S. Atomic Energy Commission. A. J. Breslin, chief of the field services branch, and Martin S. Weinstein, industrial hygienist of the health and safety laboratory at the Atomic Energy Commission's New York operations office, presented a joint paper on beryllium hazards at the industrial health session.

They said many industrial and research groups were just undertaking work with beryllium for the first time and faced the necessity of providing adequate safeguards for employees against its toxicity.

"Typically," they reported, "the scope of operations is limited, involving the machining of small parts, ceramics, fabrication, or the like. Unfortunately, sources of re-

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With the label staring the driver in the face, Hermann officials developed the idea of placing safety slogans at the bottom of each label. Such advice as, "Think, Act and Practice Safety," "Your Home Away from Home—Please Keep Vehicle Clean" or "The Life You Save May Be Your Own" serve to keep reminding the driver of his responsibilities.

These safety messages change after each 5,000-mile checkup. Labels are easily removed because they are affixed with a special adhesive designed for the purpose.

Label design by courtesy of Avery Label Co.

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liable safety information in this are scanty. Much of the literature applies to large scale operations and, in some instances, is contradictory."

Their paper described features of hazard control found effective at several small beryllium facilities engaged in machining, powder metallurgy, ceramics, and various research and development projects. The statement discussed industrial hygiene programs, including ventilation design, protective clothing, housekeeping practices, and exposure experience as accident preventatives.

The fate of oldtime highwaymen and cattle rustlers notwithstanding, the end of a rope is the safest place for men in some twentieth century occupations.

Operators of storage tanks, vats, tank cars and similar enclosed spaces were told the high death toll in their industry could be reduced if every interior worker were fastened to a rope at the other end of which would be another worker whose sole responsibility would be to watch him and pass him tools as needed.

Bob L. Banks, supervisor of safety and plant protection for the Celanese Plastics Co. of Newark, N. J., described working in such enclosed places as being more hazardous than a snake pit. The lethal forces are invisible and usually unpredictable. He stated the dangers included poisoning, suffocation, fire, explosion, and contact dermatitis. He said corrosion of interiors or residues of cargoes often generate lethal or explosive gases.

Mr. Banks declared his company had reduced accidents by requiring all employees to get an entry permit before entering any tank. The entry permits were issued only after twenty specified conditions were checked and found satisfactory. Pointing out that, in typical accidents, the toll often spread from the first employee who got into trouble inside a tank to those who rushed to help him and were then overcome. Mr. Banks said as a strategy for survival every man who

descends into such a tank should have an assigned watcher to haul him out if necessary. He said the watcher should never descend into the tank until he has sounded the alarm and been covered, in turn, by another watcher.

The person who is too fearful of hazards may have an accident because of his anxiety. H. H. Fawcett, consulting engineer at the General Electric Company research laboratory at Schenectady, said that employees handling substances known to be toxic in large doses or under specific conditions sometimes de-

veloped allergies because of undue fear of the materials.

Addressing a chemical session at the Safety Convention, Mr. Fawcett said: "Overfear and anxiety about hazards may actually create accidents. Personnel may be so fearful they will become nervous and supersensitive—perhaps even allergic.

"The reverse condition, lack of adequate respect for a hazard, may also contribute to accidents by encouraging carelessness and lack of protective measures. Exactly how

to present the degree of hazard to personnel so that they will react with respect and confidence but are not fearful, is one of the challenges of supervision."

Mr. Fawcett said the word "toxic" was virtually meaningless in most of its uses so far as safety was concerned. He said the effect of such substances on persons depended on the amounts, the conditions of use, the physical and emotional condition of the user or handler and a number of other variables. He said a technician was killed recently by fumes of a solvent that is advertised as "20 times safer than carbon tetrachloride," but the victim used the solvent inside a furnace where there was no ventilation.

A plea for more ethical and responsible labeling of potentially dangerous commercial products was made by Mordaunt P. Redford, safety supervisor of the Norfolk Shipbuilding and Drydock Co. He said that many accidents were caused, some with loss of life, because manufacturers used terms that condition users of their products to relax necessary vigilance.

"Modern labeling of many hazardous materials," he said, "would certainly lead one to believe they are safe. Advertisements, data sheets, pamphlets and other advertising media are over-emphasizing

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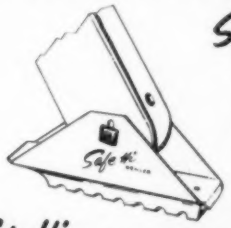

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the products' safety and, in some instances, make completely false statements.

"For example, those that specifically state the material is non-flammable and immediately follow this statement by giving the flash point and fire point of the material. Even if the law does not require labeling materials with flash points above 125 degrees Fahrenheit as 'Flammable,' it certainly does not approve the caption of a non-flammable label.

"Another example is using the term 'Safe When Used With Normal Ventilation.' What is normal ventilation? Normal means regular, usual, or natural; such ventilation in an engine room or any other enclosed area is certainly not at all adequate for spraying toxic solvents.

"Some statements and claims are technically true. Unfortunately, however, thousands using such materials are not technical people and have to depend on you, Messrs. Manufacturer, Distributor, and Salesman for safety. The 'safety' of a product is not the concern of us consumers or users. What we need to know is—What are its dangers?

"Safety cannot be compared. Those who have failed to survive such illnesses are not 'twenty-five times less dead.'"

Dr. Robert P. Sim, of the medical department of Esso Standard Division of the Humble Oil and Refining Company, addressed the convention's industrial nursing session. Discussing the legal responsibilities and liabilities of industrial nurses, Dr. Stewart said the company nurse

is frequently called upon to make decisions and exercise judgment. He said:

"Do this man's complaints require patient listening and counseling or are they the prodromata of something serious? Is this seemingly superficial wound suitable for first-aid care or is it potentially dangerous? Did it happen on the job or off? Is this chest pain simple myalgia or due to coronary artery disease?

"Am I sure of my decision or should I call the doctor? May this sick employee go home alone, be taken in a taxi, or is an ambulance necessary? Who should be notified?

"The doctor counts on the nurse to keep him informed of things he should know and to carry out procedures as if he himself were doing them. I might add parenthetically that there are many things nurses do better than doctors. Nonetheless, the doctor must satisfy himself that the particular nurse understands what to do when a particular procedure is called for."

Why is it that American women appear to be more sickly than men, and women in industry lose more time through illness but, in general, outlive men?

Answers to this question were essayed by a medical researcher at

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the "Women in Industry" session of the convention. Dr. Lawrence E. Hinkle, Jr. suggested that one reason might be the "culturally determined differences in the attitudes towards what constitutes illness and what creates an acceptable reason for disability in men and in women." Dr. Hinkle is associate professor of clinical medicine at New York Hospital, Cornell Medical Center. Reporting on a research study, he said:

"In spite of a great deal of information suggesting that American women have more illness than American men, there has been a reluctance to accept this as an established fact—probably because the death rate for American men is higher at all ages and their life expectancy less. In order to clarify this problem, the following study was carried out:

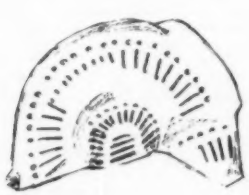
"One hundred and sixteen men and 96 women, comparable in age, ethnic and social background, occupation, social and economic position, exposure to infection and trauma, place of domicile and method of observation, were studied over a 25-year period (including five years of prospective observation), with regard to the nature and duration of every episode of disabling illness that occurred among them.

"The incidence of disabling illness among the women was significantly higher than among the men. However, the difference in incidence was almost entirely accounted for by a higher incidence of colds, 'grippe,' pharyngitis, acute gastroenteritis, dysmanorrhea, muscular pains, minor cuts and bruises, headaches, and minor periods of tension, anxiety, asthenia, or depression.

"The women were disabled more frequently and for a greater proportion of the time than the men.

"The incidence of serious, life endangering illnesses was somewhat higher among the men. An analysis of the risk of death among the two groups, based upon expected case fatality rates of the illnesses experienced, led to an estimate that, over a 20-year period, the men experienced a risk of death from illness greater than that of the women, in a ratio of approximately 4 to 3.

"It seems very likely that the higher incidence of illness reported by the women, the greater amount of disability that they experienced, and the greater number of visits that they made to the doctor, were largely the result of culturally determined differences in the attitudes toward what constitutes illness and what creates an acceptable reason for disability in men and in women."



A major construction executive told of an added and unplanned dividend the construction industry was finding in safety programs.

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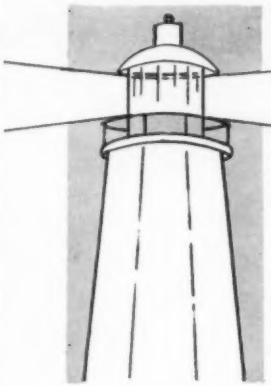

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E. K. Wilkins, vice-president for construction of Ebasco Services, Inc., said that in addition to reducing accidents and effecting cost savings, a good safety program was found to promote better labor relations. Mr. Wilkins said:

"I am pleased to say that I know of no other subject so common to the hearts of most contractors as safety and accident prevention. I think that one of the best ways to establish job harmony among all those working on a project is through the medium of a safety program, because in this matter nobody stands to lose and everybody stands to gain."

Mr. Wilkins described the safety training, supervision and check-up features of his firm's accident reduction program. He said also that because many construction projects were remote from community facilities, management saw to it that foremen on the site were familiar with first aid and resuscitation techniques. On small jobs, he said, the first aid station was put in charge of a member of the project safety committee while on larger projects adequate professional staffs, including safety inspector, doctor and nurse were stationed on location.

"I think that such staffs could be justified more frequently than they sometimes are in the construction industry," he declared.

A "get tough" policy for industrial supervisors against employees who ignore safety rules was advocated by William R. Stewart of Hackensack, N. J., division safety supervisor of the Public Service Electric and Gas Company.

Mr. Stewart likened the role of the industrial supervisor in safety matters to that of the officer in the police car whose mere presence on the road causes speeding motorists to slow down to the legal speed "because we are fairly sure that the officer would not condone a violation."

"Unless workers know that their supervisor is sincere and really means what he says and is not just paying lip service to accident prevention," he said, "they will usually continue to highball down the road because they are following his example."

Mr. Stewart warned the higher echelons of management against encouraging safety violations when they needed a job completed quickly. Declaring that some supervisors gave the difficult or emergency jobs to "foreman who have the reputation of getting the job done quickly, come what may," Mr. Stewart said:

"Strains in excess of safe working limits are imposed on equipment and materials, and sometimes accidents are caused, resulting in damage and loss. Violations of safety rules are condoned and safe work practices circumvented. Sometimes a man is injured or killed, but the job gets done. All too often we lose sight of how expensive this road to production may be."

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identified as among those in which a safety attitude is too often regarded as "for sissies only." The identification was made by an industry "insider," L. H. Bornoff, safety director of the H. K. Ferguson Company of Cleveland, Ohio. Declaring that an understanding of human motivations was necessary to make any industrial safety program effective, he said:

"Unfortunately, there are too few organizations that practice this psychological approach to accident prevention."

Mr. Bornoff said that in the four years his company has been "utilizing human motivation" it has reduced accidents and has won the industry's highest safety award for two successive years and has received other safety citations.

"There are still some industries," he declared, "and the construction industry is included, where the attitude toward safety is considered for sissies only, or that safe practices are to be adhered to only when the top brass is around."

An effective accident program, he said, requires that "a sincere and aggressive attitude of top management be made clear to all employees" with emphasis "that failure to comply with safety policies and procedures will result in disciplinary action, censure from safety-conscious employees, or other distasteful results."

Such measures, he said, supply a motive for doing the job the safest possible way at all times. Despite a retarded attitude in many parts of the construction industry, said Mr. Bornoff, the industry had made safety progress since the days when a "prime responsibility" of certain foremen had been "to make available for their crews jugs of moonshine whiskey strategically located on the job so they could imbibe when they were so inclined."

In his talk on human motivations, Mr. Bornoff said:

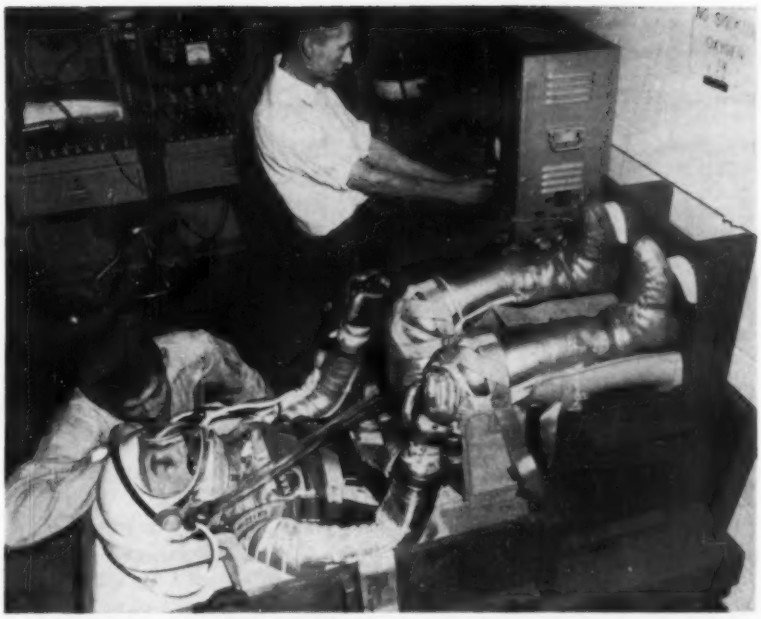
"In observing the behavior of personnel, we must consider their intelligence, personality, interests, motives, wishes, past experiences, and habits. It would be helpful if it were possible to divide workers into two groups—those who are accident prone and those who are not. We could then get rid of the accident prone and our problem would be solved.

"But, accident proneness is an elusive thing and so specific to the situation of the moment that this idea was abandoned long ago. A worker is just as dead whether his fatal accident was his first or one of a series. In any event, it was his last."

Mr. Bornoff said he was convinced "that the most important problem is one of attitude." He added that the major effort exerted by organizations concerned with safety should be directed primarily toward an improvement of the general attitude toward accident prevention. "We must think safety and let our actions be governed by such thoughts. Safety is not an attitude that can be called up only on occasion like a Sunday suit used for special functions only."

A new estimate on the number of persons who suffer accidental injuries in their homes was made public at the annual convention.

(Continued on page 31)



Test Device Proved Astronaut's Suit "All A-O.K."

Safety tests on the astronaut's pressure suit were continued until the moment he was sealed into the Mercury capsule for his space flight from Cape Canaveral on May 5th. A unique testing device was developed for the National Aeronautics and Space Adminstration to perform the vital pre-launch safety checks on the pressure suit. The test console is shown on the table at right during a check-out of one of the other stand-by (or back-up) astronauts.

The test device pressurizes and ventilates the suit, measures the flow of oxygen through the suit and tests for leakage. The test console, which maintains pressures from 0 to 5 pounds, simulates the actual internal suit pressures which Commander Shepard experienced during the flight of Freedom 7.

The console also provides communication between the astronaut and ground support personnel making last minute adjustments and relaying other instructions. A unique feature of the test console is a built-in altitude chamber which permitted remote site control and measurement of suit performance while the astronauts were subjected to actual flight pressure in NASA altitude chambers during the training period.

The suit's environmental system has a control regulator to maintain proper oxygen and pressure levels. The astronaut's helmet has a miniature oxygen system that pressurizes a pneumatic gasket sealing the moveable visor against leakage.

Picture of the Firewel test device by Authenticated News.

Edited by HENRY M. GROSMAN
Counselor at Law, Newark, N. J.

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EMPLOYMENT RELATIONSHIP—Trustee of Trust as Employee—Partnership as Independent Entity

The claimant, his son, and the son's wife entered into a declaration of trust whereby the claimant and the son became the trustees and all three were beneficiaries. The son inquired of a workmen's compensation insurer as to whether his father as trustee of the trust could be covered under a policy. The company apparently felt that he could and issued a policy. The father worked as a carpenter, took orders from his son and did not participate in the management of the business. The father was injured and sought compensation but the reviewing court reversed an award ruling that the provision of the declaration created what was in legal effect a partnership and the claimant as one of the partners could not be an employee. On appeal, the decision was affirmed. It was stated that, for many purposes at least, a declaration of trust of this sort is held to create a partnership because of the power of the beneficiaries to take charge in the affairs of the business at any time. For purposes of workmen's compensation, it was ruled that the partnership could not be recognized as an independent legal entity and therefore an employment relationship could not be shown. The fact that the father took orders from his son did not make him an employee because, according to the trust provisions, he had all the powers of management that his son had and, in contemplation of the law, was no less an employer. Affirmed.

Ryder's Case; Massachusetts Supreme Judicial Court. No. S-12, 452. Jan. 12, 1961.

ARISING OUT OF EMPLOYMENT—Employee Injured In Hotel Room While On Business Trip

Claimant was employed as a food demonstrator. She was sent by her employer to demonstrate a product in a store located 90 miles from New York City, where she lived. It was, therefore, necessary to stay overnight in the city where the store was located. She was reimbursed for all expenses incurred while on business trips. She arranged for a hotel room and returned to it after finishing her day's work. After reading a story, she arose from a chair, slipped and fell on the floor which was quite waxed, sustaining an injury to her wrist. The court ruled that the stay in the hotel room was within the area of her employment, that the injury occurred while she was engaged in a "normal" and "reasonable" activity and that the injury was therefore compensable. Affirmed.

Regan vs. Food Store Demonstration, Inc.; New York Supreme Court, Appellate Division, 3rd Department. No. 2694. January 17th, 1961.

GOING TO AND FROM WORK—Carrying Employer's Money at Time of Injury

The claimant was improperly awarded compensation for injuries she received when struck by an auto on her way home from work. The claimant, a nursery school teacher, was acting for the vacationing supervisor. Part of her temporary duties was to collect certain fees, which were to be kept by her over the weekend so they would not remain overnight at the school. She contended that, since she was carrying her employer's money when she was struck, the employer was liable for compensation. The court stated that there was no causal connection between the fact that the claimant was carrying her employer's money and the injuries she received. The same thing would have happened with or without the money and she was not injured during her fixed working hours. The court ruled that compensation was to be paid for injuries resulting from hazards of work and duties of employment, not going to and coming from work over routes similarly encountered by the general public. Remanded.

United States Fidelity & Company vs. Rowe; Florida Supreme Court. No. 30, 715. February 8th, 1961.

BACK INJURY—Pre-Existing Condition

From the evidence it was found that claimant came to work one day and complained to her fellow employee and supervisor that her back hurt. This complaint was made before she began to work. She worked all day and returned to work for the evening shift when she made her complaint about her back and told the supervisor that she thought she caught a cold from a fan. She made no complaint of an accident, an injury or a fall. The evidence supports the finding that claimant

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19 - WEBB'S INDUSTRIAL PLANT SERVICE
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failed to maintain the burden of proof that she sustained an injury to her back in an accident arising out of and in the course of her employment, but, on the contrary, that her condition pre-existed the date of the alleged accident. Judgment for claimant reversed and case remanded with directions to affirm the Commissioner's award denying compensation.

Industrial Commission of Colorado vs. Klackkowski; Colorado Supreme Court. No. 19326. March 13th, 1961.

Safety Convention
(from page 28)

Dr. William F. Hickey Jr., consulting physician of the American Mutual Liability Insurance Company of Boston, said that a survey indicated that 5,600,000 persons sustained hurts in home accidents serious enough to require medical attention. This compared with the estimate of 4,000,000 serious injuries and 27,500 home accident deaths made by the National Safety Council recently in its 1961 "Accident Facts."

Dr. Hickey, addressing one of the sessions on home safety, said that the new survey, made during the past year by the insurance company's Institute for Safer Living, consisted of door-to-door interviews of householders in 1,065 homes in 58 representative communities from Maine to Texas and Florida to Illinois. He said the findings were projected to the 40,000,000 private homes in the United States.

Dr. Hickey said that of all the injuries which later required professional care 35 percent had received no first aid at the time of the accident. He said he did not know whether in the other 65 percent the first aid "meant simply cover the victim with a blanket, giving him whiskey—which, so far as I know, is always wrong—or putting him to bed." He said that two-thirds of those who gave first aid confessed to interviewers that they did not know whether they had done the right thing.

Urging an educational campaign of first-aid treatment to reach some member of every home, Dr. Hickey said: "The 40,000,000 private homes of our country are an important field for education in order to reduce the staggering losses of life, working days and dollars."

Devices have been perfected whereby an automobile takes over control from the driver when his physical or emotional condition makes him an unsafe driver, according to James L. Malfetti, exec-

utive officer of the safety research and education project at Teachers College, Columbia University. He told his audience that his own car was equipped with a device which would minimize accidents due to heart attacks, falling asleep, or intoxication. It operates on the principle that drivers must make a certain number of steering wheel corrections per driver mile. If less than a minimum number of such corrections are made, the device "discovers" that something is wrong with the driver and it takes over.

In this connection, said Dr. Malfetti, a recent study showed that from 1950 to 1957, forty-nine percent of the drivers killed in single car accidents in Westchester County were legally drunk.

Another possible measure of driver control is tension responses, which may be determined by the strength of the driver's grip on the steering wheel, his psychogalvanic reflexes, or his heartbeat count. Dr. Malfetti said automatic devices triggered by pre-specified values of these measures might provide warnings of personal reactions of which the driver might be unaware, or they might relieve him of control. If, for instance, a motorist quarreled at breakfast with his wife or developed a case of extreme anxiety about a big deal ahead, his car might refuse to budge until he quieted down to a point where he could drive safely.

A telephone company repair truck in Manhattan, a milk truck in rural Orange County, a suburban oil delivery truck, and the cars that inspectors of the New York City Department of Water Supply use in checking on the city's reservoirs in the Catskill and Croton districts are among the safest vehicles in the metropolitan New York City area.

These types were among the nine top award winners announced in the Greater New York Safety Council's 25th annual Inter-Fleet Accident Reduction Contest. Competing, on the basis of their safe operation records during the past year, were 328 fleets operating a total of 20,000 commercial vehicles.

The fleets completed in divisions and groups according to their type of operation, size of fleet, and whether urban or suburban. Performance for some types of operation was judged on the basis of average accident-free mileage. For others, comparisons were made of the average number of hours the vehicles were operated without accident.

Grand awards in the form of plaques went to the contestants who had the lowest accident rates in their divisions. Other awards were given to group winners. Special citations went to all accident-free fleets. Frank Palmieri, contest chairman, explained that eight fleets went through the year without accident. However, accident-free fleets whose limited operations

did not approach in mileage or hours of operation the exposure to accident hazards of other fleets in their divisions were not given top awards. For this reason there are separate accident-free awards.

The grand award winners were announced as follows:

Class 1, Urban Miles. Breyer Ice Cream Company, Long Island City, 3 accidents in 1,381,428 miles of operation.

Class 1, Urban Hours. New York Telephone Company (Eastern Plant, Manhattan), 1 accident in 71,447 hours of operation.

Class 2, Urban Miles. Consolidated Edison Company of New York, Mechanical Engineering, 1 accident in 274,057 miles.

Class 2, Urban Hours. American District Telegraph Company, O accidents in 29,656 hours.

Class 1, Suburban Miles. Dairymen's League Cooperative Association (Middletown Garage), 5 accidents in 3,109,928 miles.

Class 1, Suburban Hours. New York Telephone Company (Western Division-Westchester), 2 accidents in 257,884 hours.

Class 2, Suburban Miles. Department of Water Supply, Gas & Electricity (Catskill-Croton-Western Division), 2 accidents in 488,084 miles.

Class 2, Suburban Hours. Lewis Oil Company, Inc., Port Washington, 3 accidents in 58,699 hours.

Class 1, Urban Miles Passenger car division. Dairymen's League Cooperative Association, 12 accidents in 3,515,925 miles.

The accidents-free winners of special citations were:

Bedford Hills Concrete Products; Alfred A. Buddenhagen, Inc; Consolidated Edison Company of New York (Promotion Dept.); Dairymen's League Cooperative Association (Hillside, N. J., Branch); Dairymen's League Cooperative Association (Middletown, N. Y., Branch); City of New York Department of Purchases; and General Bronze Corporation.

MCA Meeting

Secretary of Commerce Luther H. Hodges and Robert C. Tyson, chairman of the Finance committee of the United States Steel Corp., will be the principal speakers at the 89th annual meeting of the Manufacturing Chemists' Association, Inc. Approximately 800 executives from some 180 chemical companies located in the U. S. and Canada will attend the meeting at The Greenbrier, White Sulphur Springs, West Virginia, June 8–10.

During the business session the Association will present awards to six outstanding educators, culminating the MCA's 1961 College Chemistry Teacher awards.

Another feature will be presentation of the Lammot DuPont Safety Awards to two member companies which showed the greatest percentage of reduction in their average disabling injury frequency rate for the past two-year period, compared with their rate for the immediately preceding three years.

industrial hygiene

Edited By
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Industrial Toxicologist and Hygienist

Author of
"Manual of Industrial Hygiene and Toxicology"
"Manual of Methods of Air Pollution Control"
"Monographs of Industrial Hygiene"

Member of
American Industrial Hygiene Association, N. Y.
Fellow American Institute of Chemists
American Chemical Society
American Academy of Forensic Sciences (Toxicology Section)

Smog Control Forecast

Los Angeles County could be as free of smog by 1965 as it was in 1940.

This is the conclusion reached by the Air Pollution Control District in a 290 page report which sums up ten years of air measurement and analysis by the APCD.

The prediction that smog may be reduced to its pre-war level by 1965 is based upon these facts, the report states:

1. Many contaminants from non-moving sources already have been reduced below the 1940 level.
2. The other contaminants of significance from non-moving sources should be reduced to that point by developments already under way or planned for the next few years.
3. Effective air pollution controls for motor vehicles are scheduled to be on most vehicles by 1965.

After 1965 a continuing effort will be needed to restrain pollution as industry, population, and motor vehicles continue to increase and expand into areas now undeveloped, according to the report.

During the past twenty years, population and motor vehicles have more than doubled, gasoline consumption has more than tripled, and other factors affecting air pollution have increased comparatively. Similar increases after 1965 could cancel out the gains made in controlling smog unless control techniques can be improved further.

Nuclear Courses

The Atomic Energy Commission has announced that applications are being accepted for specialized advanced courses in reactor technology which will be offered again at Oak Ridge National Laboratory, Oak Ridge, Tennessee, beginning next fall.

Both programs—reactor operations supervision and reactor hazards evaluation—while designed principally for students from abroad, are also open to U. S. citizens. The courses start September 25 and run a full year. The tuition for each course is $2,000.

Applicants should possess a bachelor's degree in chemistry, physics, metallurgy, mathematics, engineering physics, or in aeronautical, chemical, civil, electrical, mechanical, metallurgical, general or nuclear engineering.

International applicants may apply by June 15 through their respective embassies or legations to the U. S. Department of State. U. S. citizens may apply to the Director, Division of International Affairs, U. S. Atomic Energy Commission, Washington.

Public Health Meeting

More than 5,000 public health specialists from this country and abroad are expected to attend the 89th annual meeting of the American Public Health Association and meetings of about 60 related organizations at Cobo Hall in Detroit, November 13–17. Registration will be open to non-members.

Among those attending will be administrators, research scientists and other specialists on the staffs of international, national, state and local health services and voluntary agencies. Joseph G. Molner, M.D., health commissioner of Detroit, is chairman of the local arrangements committee.

Scientific sessions and exhibits will cover community health, prevention of disease and control of environmental health factors. The association's fourteen sec-

(Continued on page 40)

Industrial

by **MARK M. LUCKENS**

Air sampler makes continuous check on rise or fall of lead content of air.

The right of an employee to a safe and sanitary working environment is almost universally recognized. Although basically not new, the acceptance and implementation of this principle has been accomplished only within the past few decades. Many of the pioneers in the field of occupational health and safety are still active. Many of those engaged in this work are students of those who fought for these humane practices and created the disciplines concerned with the achievement of optimal industrial environments. Human rights, technological advances, profit motives, the need for production efficiency —all played important roles in achieving these goals.

As industrial processes become more complex, as new machines and new materials are introduced into industry, the importance of the scientist, physician, and engineer concerned with the conservation of industrial health and the maintenance of safe industrial environments will increase. The day is fast approaching when *every safety engineer will be required to have at least some training in industrial sanitation, industrial hygiene, and industrial toxicology.* It is the purpose of this article, and additional ones to be published in the future, to acquaint the safety engineer and others in management with some of the basic principles of industrial toxicology and hygiene.

Toxicology, in its broadest connotation, is the science of poisons. **Industrial toxicology** is that aspect of the science which is concerned with the sources, origin, chemical and physical properties, physiologic effects, analysis, and evaluation of all materials in the industrial environment which, when absorbed into the body, are capable of producing injury or death. Industrial toxicology differs from general toxicology quantitatively, not qualitatively. There is nothing characteristic of industrial poisons, themselves, that makes their effect any different from poisons generally. Frequency, association with other toxic substances, mode of entry of the poison into the body—all tend to create a characteristic picture of industrial poisoning. But it should be emphasized that the peculiarities of industrial poisonings are due to the factors in the industrial environment rather than the physiologic effects of the poison itself.

Characteristics of Industrial Poisonings

While a large number of poisonous substances are found both in industry as well as in the home and farm, certain poisons are associated with the industrial environment as raw materials, finished products, effluents from processing or even decomposition products. The greatest number of non-industrial poisonings are *acute,* that is they result from a single severe exposure to the toxicant. Industrial poisonings, on the other hand, tend to be *chronic or subacute.* They result from continuous exposure to small quantities of the toxic substance or from repeated exposure to moderate amounts of the poison. This is not to say that acute poisonings do not occur in industry. The important point is that the frequency is decidedly different.

The frequency and relative importance of the mode of entry of industrial poisons is a characteristic feature of poisoning in industry. *Non-industrial* poisonings occur with the greatest frequency through oral ingestion. Next in frequency are inhalation and absorption through the skin. The relative importance of these routes of entry follows this same order.

In industry, however, the most important and frequent means whereby a toxicant gets into the body is through the lungs. This is followed by entry via the skin. Poisoning by ingestion is relatively unimportant and infrequent.

How Does Poisoning Occur?

Poisoning occurs in one or both of two different ways. A poison may exert its effects, locally, at its point of contact with the body. In many other instances, the poison is carried by the blood stream to

Toxicology for the Safety Engineer

Every safety engineer must have a working knowledge of industrial toxicology. This is the first of a series of articles outlining the basics of industrial toxicology and how they relate to health conservation.

an organ or tissue and exerts its effect at that point. In the final analysis, all toxic agents produce their effects by altering the normal metabolism of cells or tissues. This change in normal physiologic function may be due to an alteration in the permeability or irritability of certain cells or to a change in the normal functioning of the cells or tissues affected.

From this superficial discussion, it is obvious that a poison, in order to produce its effects, must come into contact with a susceptible tissue. There are three or perhaps four ways in which poisoning can occur.

• *A toxic substance may gain entry into the body as a result of inhalation.* The material is breathed into the lungs. Here it is picked up by the blood and carried to the target tissue by the circulation.

• *A poisonous substance can enter the interior of the body through the unbroken skin.* Contrary to popular belief, there are many substances which because of their physical or chemical properties can cross the skin barrier and thus gain access to the blood stream, which will then carry them to the susceptible tissue.

• *The third means whereby a toxic agent can enter the body is by oral ingestion.* The person swallows the substance. After passing into the digestive tract, it is absorbed by the blood and carried to the target tissue or tissues.

• *The fourth mode of entry, as it is called, is actually a variation of the second instance. The toxic agent may be so irritating or corrosive to the skin or epithelium that it will destroy the skin or other protective lining at the point of contact.* Thus it, or its products, gain entry to the interior or the blood stream.

How Does a Poison *Poison?*

Once a poison has reached a susceptible tissue, it exerts its action in one of three ways:

1. It may actually destroy the tissue. A good example of such an instance would be the action of a strong acid or alkali on the skin or the mucous membranes. A variation of this type of action might be the irritating effect of a mildly corrosive agent on the skin resulting in a dermatitis.

2. Another way in which a toxic substance may act is by interfering with the transport of extracellular oxygen to the various tissues of the body. In the case of carbon monoxide poisoning, this gas combines with the hemoglobin in the red blood cells. This prevents the hemoglobin from combining with oxygen. Thus the red blood cells are incapable of carrying oxygen

to the various parts of the body. Other agents, such as methane, the inert gases, and carbon dioxide produce their major effect by actually displacing the oxygen in the atmosphere and reducing it to a level inconsistent with the maintenance of life. In either case, they effect asphyxiation without the use of physical force.

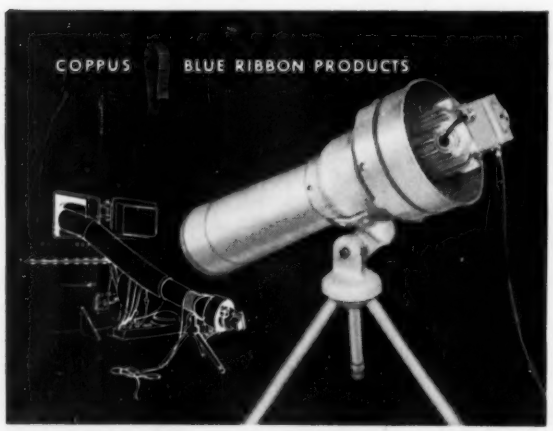
3. The third mechanism of action occurs on the cellular level. The toxic substance or a product of its interaction with the organism interferes with an essential metabolic process. In one form, the toxic agent may be said to act as a "squatter." Certain substances, because of their physical properties can accumulate in a vital part of the cell or on the cell surface, and thus interfere with the normal activities of the cell. Most anesthetics, many narcotic agents, as well as many industrial solvents belong to this group.

Other poisons owe their activity to their configuration or the presence of specific reactive groups on their constituent molecules. They are toxic because of their structural, spatial and/or chemical resemblance to essential metabolites. They can displace the latter in specific synthetic processes or inhibit the activity of essential enzymes.

"It's a collection for Joe. He got hurt running that machine the same careless way you're doing now."

Some toxicants exert their effect by sequestering trace metals essential for the body's normal metabolism. The presence of a sufficient concentration of these sequestering molecules results in the "tying up" of essential metals needed for enzyme formation thus making the latter unavailable for synthetic or other metabolic processes. The poisonous effect of the heavy metals is due to their ability to chelate (sequester) with amino and thio groups. The effect of the organic phosphate insecticides is due to the fact that they are able to prevent cholinesterase from hydrolyzing acetycholine at nerve endings. The latter is essential for the transmission of nerve impulses. Cyanide owes its toxic effect to its ability to inhibit cytochrome oxidase, an enzyme essential to normal body metabolism. It would appear that enzyme inhibition, in one form or another, is probably the most important mechanism of action of poisons.

Picture by courtesy of E. I. DuPont de Nemours & Co., Inc.



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HELP FROM THE LADY IN WHITE

by **MRS. MARGARET L. STEELE, R.N.**
President, American Association of Industrial Nurses, Inc.
Superintendent of Nurses
American Brake Shoe Company, St. Louis, Missouri

The decade ahead will present new and critical problems in industrial safety. New ideas, new methods, new attitudes will be required to meet these problems. Obviously the first responsibility for working out safety solutions in the 60's is with the "regulars," the professional occupational safety leaders. However, safety men can and should receive valuable assistance from "auxiliaries," other industrial specialists who have the training and experience to make a genuine contribution to the cause of a safe working America. Among those who have a strong secondary responsibility for safety are industrial nurses, who have a special concern for maintaining industrial health conservation.

During the 60's it is likely that the nurse and safety director will, in their own specialties, face new problems which arise from common causes. This will, of course, stimulate the two specialties to work in even closer cooperation than they have in the past.

At this critical moment of great challenges, we have both urgent national need and great desire to expand our industrial production. To satisfy this need and desire we are rapidly acquiring new tools, new methods, new materials and new sources of energy. The greater impact on industry and industrial workers of such things as automation, nuclear energy and the opportunity, literally, to explore new worlds, is a matter of common knowledge.

These technological advances will of course create new safety challenges. Every new method, new piece of equipment, new material will influence the health and safety of the industrial worker. Many new *things* will be used and made in industry during the next decade. Even more importantly from the standpoint of safety and health, there will be many new *people* working within industry in new jobs and in new ways.

As an example, the U. S. Department of Labor estimates that in 1970 there will be 13½ million more

The modern industrial nurse takes an active part in demonstrating proper safety equipment to today's skilled worker.

workers in this country than there are now. However, there will be just about the same number of workers in the 25–44 age group (the group which we now think of as "typical") in 1970 as there is today. Of the 13 million-plus new workers nearly half will be women. Other large groups will come from what we consider the older and younger age brackets.

Different Emphasis

The new workers will be working at new jobs and with new tools. The situation is not comparable to that of the early 1940's when women became welders because there were no men available. The nature of the work will vary, but in general it will be more cerebral, less physical than is now the case. Technical training will become more important than physical strength. Physical power will be less prized than the power to concentrate. In fact, "the industrial complaint of the future will be the aching head, not the aching back."

What does this change in the composite profile of the industrial employee mean in terms of safety?

First, of course, it means that there will be a sizeable group of new employees who must be indoctrinated in the fundamentals of safety. In many cases this group will be more innocent of knowledge of safety hazards and traditions than any group which has preceded it. The son of an industrial worker, for example, will have developed almost instinctively certain safety attitudes and habits, but this may not be the case with a daughter.

The second apparent fact is that because of the new technology and the new kind of worker, the substance and methods of safety instruction will need to be re-examined, and very probably revised. It is obvious that a grandmother working in a computer unit needs different safety information than does an active 30 year old man working on the shipping dock. The grandmother needs different instruction and if the instruction is to "take," it must be presented in a different manner and with different emphasis.

Fallacy of Cerebral Jobs Being Safer

A third circumstance, perhaps less obvious, but no less true, is that the grandmother-technician can have as many and as numerous accidents as the shipper. There is sometimes a tendency to downgrade the accident potential in this new, cerebral era of industrial work. The reasoning goes something as follows. "Accident is physical injury. If work is less physical, then the opportunity for accident will be less." The fallacy of this logic is twofold. First, as safety men well know, people can find ways of having accidents while they are literally sitting down. Secondly in terms of lost production, which is the economic measure of accident severity, the injury that a husky shipper might shrug off, can have far more serious physical and emotional consequences for the less robust worker.

The assumptions as to the nature of the challenge ahead in safety also indicate some of the work necessary for meeting these problems. It is in this area of challenge, instruction and counseling in safety practice, that the industrial nurse can make her greatest contribution to accident prevention.

The Nurse's Role

In her own field, occupational health, the nurse is increasingly involved with informal employee counseling and interviewing. The emphasis in occupational health is now on health maintenance, keeping employees in good health rather than merely being satisfied to treat them once they become ill or have suffered injuries. It is a recognized fact in occupational health work that the key to success in maintaining employee health is in enlisting the voluntary cooperation of employees. Take for example, the considerable problem of obesity. Facts concerning the effects and control of obesity are well known to health workers. The challenge is to inform employees of these facts in such a way as to convince them of the advantages of following sound health practices. To accomplish this purpose the nurse has learned that she must master the technique of communications, the skills of human relations, interviewing, counseling, and instruction. The industrial nurse cannot order a chubby employee to shed excess pounds. She must quietly teach and patiently persuade him of the virtues and rewards of slimness.

The same situation exists in the safety field. It is neither possible nor desirable to "order" an employee to be safe. The employee will be safe only if he chooses to be safe. The extent to which he will choose to be safe depends to a large extent upon how persuasively and convincingly the facts of safety life have been presented to him.

Unique Position

Perhaps no other group within industry has had the varied practical experience in this art of persuading people to help themselves as have industrial nurses. It will be a severe and unnecessary loss if this experience is not used in the cause of safety in the coming critical decade.

Not only the nurse's experience, but also her status within industry, allow her to give valuable assistance in instructive safety programs. Some authorities have referred to the status of the nurse as being the "neutral niche." By this they mean that the nurse holds a respected position, one removed from both management and labor partisanship as the representative of a profession whose keynote tradition is one of unselfish service to others. She can be sympathetic but still objective. She can be frank without being hostile. She can advise without fear of being accused of having ulterior motives. She can lead without coercion. The nurse, in short, is an important maker and leader of opinion within the plant. She does not injure her neutral and trusted position by influencing employees in the direction of better safety practices.

The nurse then has two advantages which can be invaluable in the coming effort to indoctrinate new workers in safety procedures. She has learned the techniques of persuasive instruction through her work

(Continued on page 40)

Paper Suits Dispose of Nuclear Contamination

Disposable paper suits are part of the atomic-age wardrobe. "Wear 'em and burn 'em," is the slogan.

The paper clothing—pants, coats, and even a matching hat—is widely used as wearing apparel for personnel who work with radioactive materials at General Electric's nuclear equipment plant in San Jose, California.

The atom workers, in joining with electronic and drug industry employees as users of this type of disposable clothing, report the paper clothes are lighter, cooler and more comfortable than normal work clothing.

They also provide an additional safety factor for the workers—already protected by rigorous safeguards—because they are more impervious than the conventional cloth coveralls.

Made of heavy-duty, fire-and-water-resistant, nylon-threaded paper, the suits are being worn in controlled areas of the plant's nuclear fuel manufacturing operation, as well as in the company's Vallecitos Atomic Laboratory in Pleasanton.

The paper suits are worn only once or twice, then burned in an incinerator, specially designed for the disposal of materials which—like paper clothes—might possibly have picked up some radioactive dust particles. This system is also considerably less expensive than having normal work clothing cleaned in a special "atomic laundry," as is the practice at many atomic installations throughout the country.

General Electric's Atomic Power Equipment Department, presently using about 1000 of the paper suits a month, estimated it will save $10,000 in the

fuel manufacturing area in a year by using the paper clothing.

The special incinerator, believed to be the first of its kind placed in operation by private industry, is responsible for a large part of the savings, however.

The small amount of ashes from the incinerator can be disposed of for a fraction of what it would cost to dispose of the paper suits in bulk as contaminated waste.

Pictures from Authenticated News.

Rescue Breathing Technique Vital

From among the nearly 14,000 deaths due to industrial accidents reported to the Bureau of Labor Statistics in 1959, 2,086 involved asphyxia, the type that demands immediate artificial resuscitation.

These statistics are noted by Allen S. Cross, M.D., in an article, "Emergency Resuscitation in Industry—Using Exhaled Air," which appears in the March issue of the "Journal" of the American Association of Industrial Nurses, the nationally circulated publication of the industrial nursing specialty.

Dr. Cross comments that the most plentiful and available source of oxygen that the nurse or lay first-aider in industry can bring to an asphyxia victim is the air that the nurse or first-aider themselves breathe. The physician, therefore, strongly recommends that all be familiar with and use the mouth-to-mouth system of rescue breathing in an emergency.

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HELP FROM THE LADY IN WHITE

(from page 38)

in occupational health. She has acquired a position of trust within industry and she is a person whose advice other employees are inclined to follow.

The nurse herself must be aware of how and why these skills must be used to promote safer working conditions. The nurse must take a certain safety initiative. Currently, she is being encouraged by her professional organizations to do this. Through the *American Association of Industrial Nurses Journal* (the publication of the national specialty organization), at seminars, workshops and conferences the role of the nurse in safety is being emphasized. Stress is laid on the fact that the nurse not only can but must expect to be given certain safety responsibilities.

In addition, if the nurse is to be effective, safety leaders must also encourage her to participate in safety programs. Nurses must be given necessary technical information and briefed upon safety methods and objectives within her own plant. The nurse can be another and very effective safety instructor and counselor, but only if she is given the basic information necessary for instruction and counseling.

Two-way cooperation will ensure full use of industrial nursing skills in the campaign to make America a safe place in which to work. Because of the great human and economic need for increased safety, anything less than full use of all available resources may well mean failure.

PUBLIC HEALTH MEETING

(from page 33)

tions represent dental health, engineering and sanitation, epidemiology, food and nutrition, health officers, laboratory, maternal and child health, medical care, mental health, occupational health, public health education, public health nursing, school health and statistics.

An opening symposium will bring together leading authorities to discuss Organization for New Responsibilities in Public Health. The Sedgwick Memorial Medal, highest annual award in public health, will be presented at a general session, which will also feature the presidential address by Miss Marion W. Sheahan, deputy general director of the National League for Nursing, New York. Details of other sessions are to be announced.

Among subjects of major sessions, according to preliminary program plans, will be evaluation of health education; accident prevention; air pollution; coordination of environmental health services in metropolitan areas; current activities in international health; significant developments in various aspects of environmental health; mental health programs in industry; toxicological studies of hazardous materials in industries.

The American Public Health Association, with headquarters at 1790 Broadway, New York 19, is the largest professional society of professional public health personnel in the Western Hemisphere. Its more than 13,000 members include physicians, dentists, nurses, laboratory scientists, engineers, sanitarians, veterinarians, statisticians, health educators, social workers, educators, nutritionists and other specialists.

THE FIRE FRONT

N. Y. Fire Safety Advisors Appointed

Governor Rockefeller has announced the appointment of the Fire Safety Advisory Board, an adjunct of the Division of Fire Safety within the New York State Office for Local Government. The board advises and assists the Division of Fire Safety in the development of training courses for firemen, the administration of state fire safety inspections in private schools and in other activities designed to strengthen fire prevention programs. Members of the board serve without salary.

Designated as chairman of the new Board is Kenneth C. Townson. He is former Commissioner of Public Safety of Rochester.

Fire Chiefs Offer Radio Program

The International Association of Fire Chiefs is offering a dramatic new sponsored radio program of the nation's Fire Service: "Ira Marion, Your Fire Reporter." Designed for local radio stations, the program offers limitless tie-in possibilities for business firms, trade groups, or professional associations. The cost is nominal.

The program, which is taped, consists of five five-minute presentations a week over a 13-week period—a total of 65 programs. Each begins with the words, "This is Ira Marion, Your Fire Reporter." Then, the exciting sound of the alarm bell taps a signal. The swift "roll out" follows immediately, complete with engine start, bell, siren, and air horn.

As the sound fades away, Mr. Marion begins his story. Usually it concerns some dramatic incident in the history of the nation's Fire Service. At a point approximately two and one-half minutes later, Mr. Marion pauses in his narration.

Here, for one minute, the local Fire Chief or the sponsoring organization goes on the air. Then Mr. Marion returns to the air for completion of his fire story of the day.

The stories, told in exciting, dramatic fashion by Mr. Marion are true, drawn from today's battles against fire. Mr. Marion, a Special Correspondent for the American Broadcasting Company, is well-known by the nation's Fire Service.

Further information may be obtained by writing to the Broadcast Bureau of the International Association of Fire Chiefs, 232 Madison Ave., New York 16, N. Y.

March Losses Drop

Estimated fire losses in the United States during March totaled $109,222,000, the National Board of Fire Underwriters reported. The March figure was 6.3 percent below the $116,606,000 for February of this year, and 6.1 percent under the $116,365,000 for March, 1960, according to Lewis A. Vincent, NBFU's general manager.

In the first three months of this year, the dollar value of property damaged or destroyed by fire was $343,080,000, an increase of 11.9 percent over the $306,696,000 for the like period of 1960. These estimated losses include an allowance for uninsured and unreported losses.

Prepare Fire Protection Measures Now

Right now is an excellent time to prepare fire protection units. For many years, calcium chloride solution has been recognized as a fire protection medium where water is an extinguishing agent.

The Calcium Chloride Institute has issued a revised edition of its Brief MB-19 "Fire Protection with Calcium Chloride." It explains how to prepare the solution for various types of equipment, maintenance, and a chart which enables users to prepare the solution in strength and quantity desired.

Single copies of the revised Brief MB-19 are available on request to the Calcium Chloride Institute, 909 Ring Building, Washington 6, D. C.

New Standard For Surface Flammability

As part of a program to provide improved methods for measuring the fire-hazard properties of materials, a standard material of prescribed flammability has been made available by the National Bureau of Standards. This surface flammability standard, having a flame spread index of 150, aids in providing an over-all check of the installation procedures used in establishing the radiant panel test apparatus.[1] In addition, by comparing the results of the three given properties of the standard, any deviation in the detailed test procedures can be evaluated. However, the standard is not recommended as a substitute for these calibration procedures.

The standard material is a representative sample from a uniform lot of tempered, fibrous, felted hardboard with one smooth side. A certificate listing three properties of this sample—flame spread index, heat evolution factor, and smoke deposit—are included with the standard material. These properties are measured by performing the test on the smooth side of the material. Prior to calibration, the ma-

(Continued on page 46)

1 Interim Federal Standard No. 00136, July 31, 1959.

How Effective Are Dry Powders on Liquid Fires?

Studies with small model fires at the National Bureau of Standards have provided basic information useful in fighting full-scale fires in flammable liquids by means of dry chemical powders. The results show that chemical composition, powder particle sizes, and application rate are all important in influencing the effectiveness of these extinguishing agents. Use of model fires proved to be an effective and comparatively economical means for studying extinguishment methods for larger fires.

Study of "model" fires, as small as 1⅛ inches in diameter, recently has served at the National Bureau of Standards to provide additional basic knowledge bearing on the effectiveness of chemical powders as extinguishing agents.

In these experiments, the relative extinguishment effect of various dry chemical powders was measured by means of model heptane fires of 1⅛-, 6-, and 22.8-inch diameters. Results of the studies were discussed by T. G. Lee and Dr. A. F. Robertson, in a paper before the First International Symposium on Fire Research.[1]

1 Text of the paper, "Extinguishment effectiveness of some powdered materials on hydrocarbon fires" is included in National Academy of Sciences—National Research Council Publication Number 786, "The use of models in fire research," now in process of publication. This publication may be purchased from the NAS-NRC at 2101 Constitution Avenue, Washington 25, D. C.

The need for further basic information on behavior and extinguishment of fires involving flammable liquids arises partly from transportation and storage of such liquids for defense purposes. And although this type of information could perhaps be obtained by starting and studying full-scale fires in these liquids, the cost of such experiments would be excessive and the hazard great. Hence the need for improved techniques for studying fires with models in the laboratory.

In the studies at the Bureau one objective was to find a correlation between the extinction effectiveness of a powder and the size of the fire model. The studies also shed light on the way in which extinguishment is achieved, and provided information on the applicability of laboratory results to full-scale fires.

The extinguishing agents used were sodium bicarbonate, potassium bicarbonate, potassium iodide, potassium oxalate monohydrate, and glass beads. With the exception of the beads, these materials were initially in crystalline forms.

To improve their flow properties, 2 percent stearate (by weight) was added to the materials before grinding in a ball mill. Sieving and air washing methods were used to separate the pulverized powders into samples of narrow ranges of particle size between 5 and 40 microns.

Methods Used in Studies

Samples of these graded powders were then applied to model fires at controlled rates to determine their fire extinction effectiveness. Effectiveness was defined as the minimum powder application rate required for flame extinction.

In the initial experiments, the powder was placed in a salt-shaker type of dispenser. It was sifted from this container through the screen bottom by means of an electromagnetic vibrator. A cup was used to measure powder application rate, and a second cup con-

TABLE 1

MINIMUM EFFECTIVE RATES OF POWDER APPLICATION FOR VARIOUS FIRE SIZES AND POWDER TYPES

Fire Diameter	Minimum Effective Powder Application Rate				Ratio of Powder Application Rate to Fuel Consumption Rate
		$NaHCO_3$ required as multiple of that for:			
	$NaHCO_3$	$KHCO_3$	KI	$K_2C_2O_4H_2O$	
in.	cm²/sec				cm²/ml
1.12	68	2.1	4.5	4.9	8.7×10^3
6.0	2,100	2.6	2.3	4.2	9.1×10^3
22.8	25,500	2.7	2.7	4.6	4.2×10^3
40.6 *	200,000	—	—	—	6.2×10^3

* From data by Hird and Gregsten

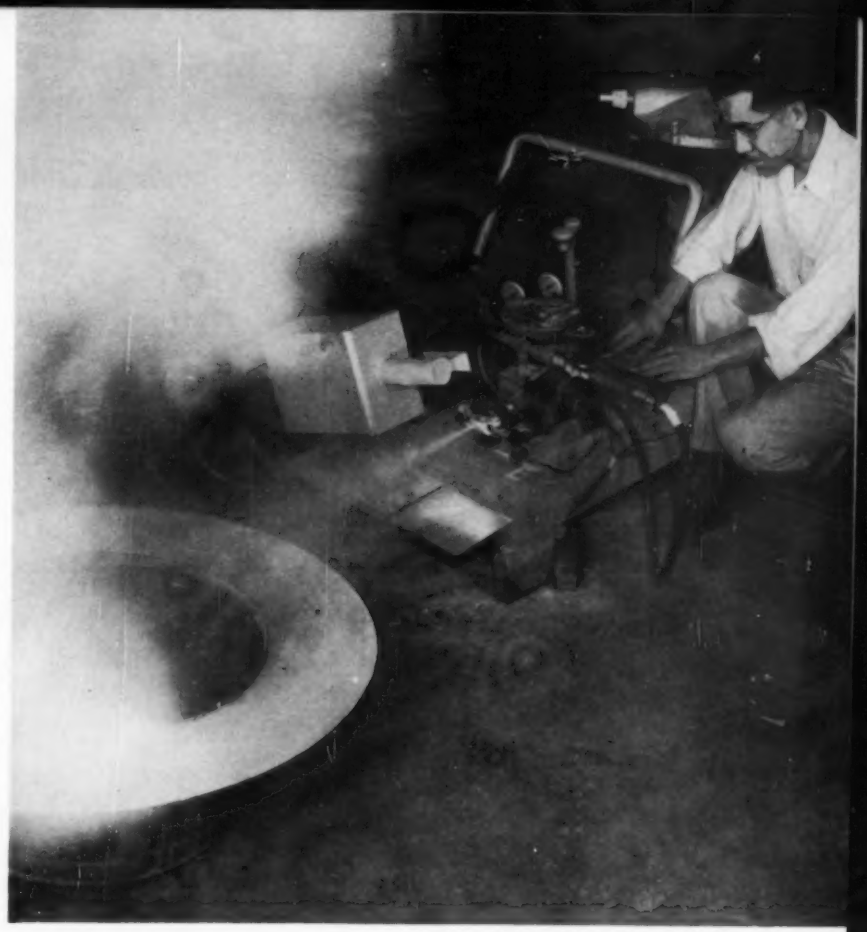


Fig. 3. Extinguishing a model fire in flammable liquid with dry chemical powder at the National Bureau of Standards.

tained the burning heptane fire. Both cups were of 1⅛-inch diameter and were placed on a platform which moved them at a uniform rate through the powder cloud. The cloud either did or did not extinguish the flame, depending on the conditions of the experiment. The equipment was enclosed in a box which permitted close control of ambient variables. (See Figure 1 on page 44.)

Experiments with this equipment determined the rate of powder application (powder surface area per unit time) needed for extinction, as a function of the particle size. Results of at least twenty individual tests for each powder size sample were noted. These results were then analyzed statistically to determine the required application rate.

Potassium oxalate was found to be more effective than potassium iodide which, in turn, was more effective than potassium bicarbonate. Relatively high application rates for glass beads suggest that a thermal mechanism alone is not sufficient to explain flame extinction by these powders. It appears that both the chemical nature and particle size of the powders influence the required rate.

Larger-Scale Studies

In an effort to determine whether the results from a 1⅛-inch cup fire model, as noted above, are applicable on a larger scale, equipment and a method were developed for powder application to larger fires. Under this method, the powder was carried by a serrated rotor from a hopper to a port fed with compressed air. The resulting air-powder mixture was fed next to a nozzle which produced a fan-shaped discharge, the discharge rate being governed by a variable speed motor. An infrared detector measured the time rate of extinguishment. Two dispensers of the above type were constructed, one for the 6-inch diameter model fire tub and the other for the 22.8-inch model.

Fuel used was heptane floated on water, and the fuel tubs were filled close to the brim so that very little freeboard existed. A circular collar of roughly twice the diameter of the fuel tub was placed around the upper edge of each tub. This assisted in stabilizing the burning process. The above equipment was used to measure the time required for extinguishment as well as the effective rate of powder application. Potassium oxalate was found to be the most effective of all the powders.

Fig. 2. Graph showing rate of fuel consumption and minimum rate of powder application for extinguishing liquid fires.

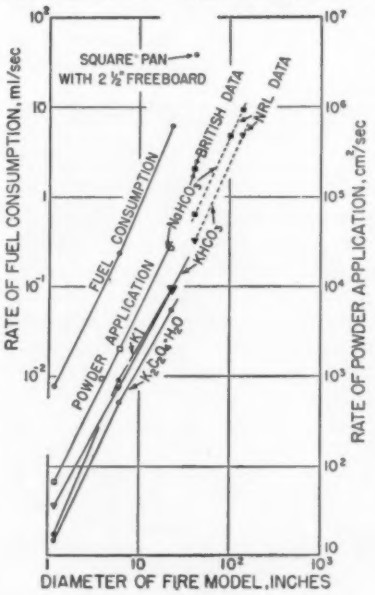


FIG. 2

In all the above studies, data were presented showing extinction time as a function of powder application rate expressed in terms of powder surface area per unit of time. Within the range of particle sizes studied, powder surface area seemed to be the best means for correlation of the data for a given material. The surface area per unit of weight of powder sample or specific surface, was determined from air permeability measurements.

The data obtained make it evident that *chemical composition, powder particle size,* and *application rate,* are all important in in-

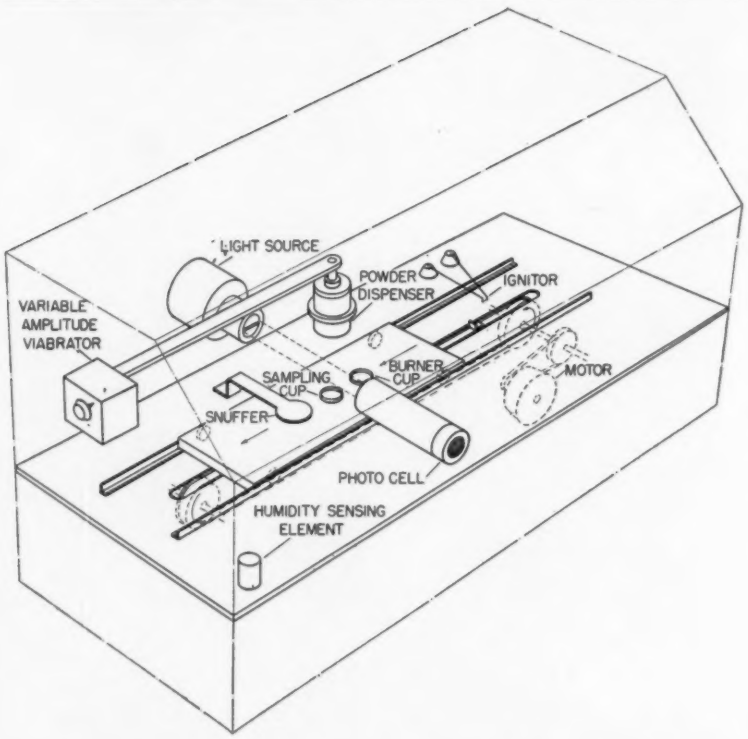


Fig. 1. Apparatus used at National Bureau of Standards for evaluating the fire extinction efficiency of various dry chemical powders for fires in liquids.

fluencing the effectiveness of these extinguishing agents.

Minimum Application Rates

Table 1 presents data on minimum application rate, in powder surface area per unit of time, required for extinguishment of fire sizes of 1⅛-, 6-, and 22.8-inch diameter, by the four dry chemical powders. Neglecting experimental errors, the ratio shown in this table for a given chemical should remain a constant for all fires, if the mechanism of extinguishment remains the same over the range of the fire sizes. The table shows that, with the exception of potassium iodide, such an effect was in fact observed. The latter material, however, when applied to the 1⅛-inch fire model, showed almost twice the effectiveness in comparison with the two larger models. The exact reason for this is not clear. Perhaps, in the very small model, the higher density and momentum of the falling particles of potassium iodide changed the effectiveness with which it could be applied and retained in the combustion reaction zone.

The last column of this table presents the ratio of powder surface area application rate to fuel volume consumption rate. While this varies by a factor of about two, it appears to indicate that no major change takes place in the mechanism with which the powder is active in controlling the fires.

Figure 2 shows these data in slightly different fashion. Data for sodium and potassium bicarbonate powders on large outdoor fires 13-ft. square, obtained by Neill [2] at the Naval Research Laboratory, as well as British data by Hird and Gregsten,[3] are included. In plotting their results, which were obtained with the use of square-shaped fuel areas, the diameter of the equivalent circular area was used.

The general agreement of the data from these experimental groups is surprising, even more so when differences in powder application techniques are considered. The NBS data on the 6-inch and 22.8-inch fires were obtained with fixed dispensing equipment which produced a fanshaped discharge covering the whole surface of the flammable liquid. The NRL data were obtained by manual operation of a portable extinguisher specially fitted for the studies. The nozzle of this unit was oscillated in such a manner as to cause the powder to involve the whole fire area. The British data were based upon square fuel fires with 2½-inch freeboard and a longer preburn period.

The above results appear to give evidence that the mechanism by which these fires are extinguished is not greatly dependent on the size of the fire, at least within the range of fire sizes explored.

2 The hydrocarbon flame extinguishing efficiencies of sodium and potassium bicarbonate powders, by R. R. Neill, Naval Research Laboratory report Number 5185, (August 21, 1958).

3 See article by D. Hird and M. J. Gregsten in Fire Protection Review (Nov. 1956).

Mutual Aid For Disaster Control

Industrial disasters create problems for management of companies involved. Stockholders, employees, customers and suppliers, communities in which such plants are located, and the national economy are also affected.

Alert industrialists at management and operating levels recognize the need for effective "in-plant disaster control" plans and organization. Responsibilities for implementation are being assigned to qualified executives.

Large and small plants in all parts of the U. S. are establishing plans within their facilities in order that they may have some degree of assurance of ability to cope with disasters and rapidly resume essential production. Larger companies, such as Standard Oil (NJ) and its affiliates and subordinates, Union Carbide, du Pont, Monsanto Chemical, Olin Mathieson Chemical, Aerojet-General, General Electric, have officials at corporate levels as well as in individual plants.

Industrial Mutual Aid organizations are being utilized to strengthen individual plant facilities. This

(Continued on page 46)

STOCK EXCHANGE DETECTORS GIVE "HOT TIPS"

When the smoke detector signals fire, the air conditioning system can be turned off by means of this break-glass box.

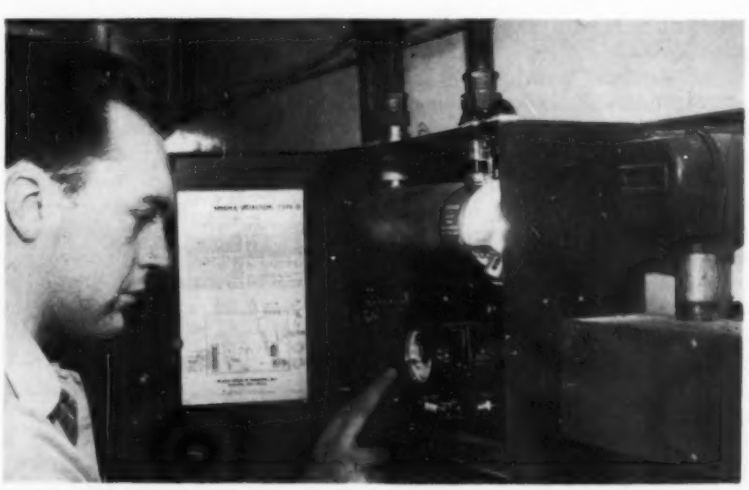
Smoke gets in your eyes—and it's a good thing it does, from a fire warning point of view," said a New York Stock Exchange executive the other day.

"But the best key to the Exchange's long safety record is a program of maintenance and vigilance," he continued, "and that means, among other things, that if there is trouble in our building, we want to receive the earliest possible warning, so that the Fire Department can be summoned promptly."

One of the fire safety considerations in an air conditioned building like the Exchange is the constant forced flow of air through the building. Fire thrives on an air flow, and the air flow also can carry smoke far from its point of origin, and create panic as well as damage.

With these facts in mind the Stock Exchange took steps to guard against these dangers when it recently remodeled and added new air conditioning systems for three areas of its building at 11 Wall Street. It incorporated smoke detection equipment in each air conditioning system's ductwork.

Two of these areas comprise kitchens, dining rooms and lounges, one on the 8th floor and the other on a level below the trading floor. These cooling systems only introduce conditioned air and exhaust it to the out-of-doors. The third system services the Stock Clearing Corporation area directly beneath the floor, which contains much highly important data processing equipment. Its cooling system recirculates conditioned air.



A Stock Exchange maintenance man checks operation of the smoke detector which monitors air conditioning ducts for the Exchange's 11th floor kitchen.

The smoke detector for each system comprises an air collector mounted in the center of the duct. The collector is attached to a control box mounted on the outside of the duct, downstream of the fans. As conditioned air flows toward the area it is cooling, the collector continuously sends air samples to the control box. There samples pass a photoelectric cell, which scans them for smoke. If smoke appears, a loud alarm bell sounds locally. By means of a break-glass box in a nearby public corridor, the entire air conditioning system can be turned off.

The smoke detectors can be regulated through a wide range so that they will trigger an alarm on any trace of smoke or upon a heavy concentration only.

Pictures by courtesy of Walter Kidde & Company, Inc.

Disaster Control
(from page 44)

concept provides the means for maximum utilization of know-how, manpower, and equipment, at minimum individual plant expense.

Although comparatively new, the Industrial Mutual Aid idea is rapidly spreading into communities in all parts of the country. Communities such as Texas City, Baton Rouge, the Kanawha Valley of West Virginia, Linden (NJ), and others in New England, the Pacific Coast, and elsewhere are setting up organizations tailored to their particular hazards.

The National Institute for Disaster Mobilization, a national nonprofit membership organization with headquarters in New York City is the focal point for the exchange of information relative to this concept. It has previously sponsored Industrial Mutual Aid & Disaster Control Seminars in Charleston, W. Va., Linden, N. J., Baton Rouge, and Cincinnati.

The Air Force and the Navy, as well as the Army and OCDM, are also strong exponents of this concept. The military recognize it as a means for assurance of continuity of essential production in critical times.

New Standard
(from page 41)

terial must be dried for 24 hours at 160° F and then conditioned to equilibrium at 73 ±5° F and 50 ±5 percent relative humidity.

The radiant panel method [2] of measuring surface flammability of materials, previously developed at the Bureau, has been adopted by the American Society for Testing Materials for research and development work as a tentative standard method of test, E-162. It is a comparative method applicable to building materials—especially those used as internal finishes—over which flames of accidental fires could travel. These include materials in the form of boards, sheets, and certain heavy fabrics; and finish materials applied as liquids, films, or sheets, or combinations of these with or without intermediate adhesive substances.

The essential components of the test equipment are a radiant panel with its associated gas and air supply, a specimen holder and pilot burner, a stack and thermocouple assembly, a smoke sampling assembly, an exhaust hood, a radiation pyrometer, and associated recording equipment. The radiant panel, a section of porous refractory, is mounted in a vertical plane and radiates energy at the same rate as a black body at 670° C (1238° F). This panel provides a means for simulating the heat feedback from flames to the unignited portions of the specimen under test.

For checking the operational procedures, the standard material, backed with a sheet of asbestos board, is placed on a supporting frame inclined 30 degrees to the vertical panel surface. Thus, the intensity of radiation at the specimen's surface is practically uniform across its width, but varies along its length. A pilot flame of acetylene premixed with air, ignites the specimen at the top. The progress of the flame front is followed by observing the times at which flames arrive at marked 3 in. intervals along the specimen length. The temperature rise of the stack thermocouples is a measure of the rate of heat evolution by the specimen.

2 For further information on the radiant panel test, see Radiant panel test for flame spread, Tech. News Bull. 39, 142 (1955).

These measurements are combined in an empirical relationship to provide a flame spread index for the specimen. An index, resulting from test of the surface flammability standard checking the certified value within specified limits, indicates appropriate apparatus installation and calibration procedures. Although the amount of smoke evolved is not a factor in determining flame spread index, it indicates the extent of a parallel hazard.

A set of four specimens of surface flammability standard 1002 and accompanying certificate with experimental data may be purchased for $8.00 from the Standard Sample Clerk, National Bureau of Standards, Washington 25, D. C.

Conference On Automatic Controls

The Second Joint Automatic Control Conference will be held on the University of Colorado campus, Boulder, Colo., June 28–30, 1961, sponsored jointly by ISA, AIChE, AIEE, ASME and IRE. It is the nation's only annual conference devoted entirely to technical discussion of automatic control. Session categories are expected to include process dynamics; techniques of control system theory; adaptive control; new components; systems testing and others.

Sixteenth Connecticut Safety Conference

Connecticut's Governor John M. Dempsey will address the opening day session of this year's Sixteenth Annual Safety Conference of the Connecticut Safety Society to be held in the Statler-Hilton Hotel in Hartford, June 13th according to Frank A. Walker, Society President. The two-day affair will feature discussions on all aspects of safety under eight general topical headings: Metal, Chemical, Construction, Hospital, Occupational, Health, Commercial Vehicle, Public

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(For details, use Key # F-11 on inquiry card on page 1)

Utilities, and Public Safety. Well known speakers have been engaged to head up each section and indications are that this conference will be one of the finest in the country this year.

It has been one of the Society's chief aims to bring safety to the small plants and help them to improve themselves by reducing their accident frequencies.

Correct Mounting of Bearings Recommended

Instruction in proper mounting of bearings to prevent damage and premature failure under operating conditions is one of the subjects covered in a series of traveling maintenance seminars now being conducted by The Fafnir Bearing Company, world's largest independent manufacturer of ball bearings.

A frequent cause of ball bearing failure is the denting which sometimes appears high on the shoulder of the race and correspondingly on each ball. This happens most often when extra force is applied against the unmounted ring while mounting a bearing on a shaft with a very close fit. Pushing of the outer ring exerts an excessive thrust load, bringing the balls into sharp contact with the race shoulder.

Radial indentations may also be imposed on a non-rotating bearing by hitting it with a hammer or by an operating shock load exerted on a static shaft. This type of denting is less common than that caused by mounting, because the rings are likely to fracture under the sharp impact of radial shock load.

In mounting a bearing, Fafnir advises, force should always be exerted **against the ring being mounted:** i.e., the *inner ring* in mounting on a shaft, the *outer ring* in mounting on a housing. In other words, the ring having the tighter fit (usually the ring which will rotate in application) should be pressed. Installers are cautioned to apply the mounting pressure slowly and evenly.

Army Sponsors Safety Exhibit

Colonel Richard H. Peter, Commanding Officer of the U. S. Army Ordnance Field Safety Office, has announced the establishment of the U. S. Army Ordnance Safety Equipment Exhibit at Charlestown, Indiana. The exhibit will be utilized in connection with the Ordnance Safety School to show and demonstrate the latest equipment to students at the school. Students will be given a complete, conducted tour of the exhibit and selected items will be used for instructional purposes in classes.

Over 200 leading manufacturers of safety equipment, who are genuinely interested in promoting safety, are furnishing items for the exhibit.

KEEPING UP WITH

EYE PROTECTION SERIES
other articles April and May

SAFETY LENS DEMONSTATOR FOR EYE PROGRAMS

Bausch & Lomb has developed a unique means for safety directors to dramatize the high degree of protection in Bal-SAFE lenses. With the new Industrial Lens Impact Demonstrator, employees working in eye hazardous areas can be shown how B&L safety eyewear withstands an impact more than twice that required by the U. S. Bureau of Standards.

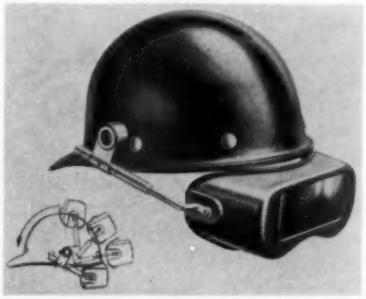
The compact unit can be used on table, desk top, or hand held for group demonstration. A pair of B&L safety glasses are inserted in the frame holder (see photo) and a spring loaded arm pulled back in locked position. When the red trigger is pressed, the 1⅛" diameter steel ball is said to strike the lens with a force equal to the ball dropping freely from a height of 50". (U. S. Bureau of Standards specifies ⅞" diameter ball for drop test.) The lens demonstrator, for use *only* with Bal-SAFE lenses (plain or in the worker's prescription) is sold at a nominal price.

For details, use **Key # EP-1** on inquiry card on page 1.

SAFETY FASHIONED EYEWEAR

The industrial safety eyewear line of the Wilkie Optical Co. has been styled for attractiveness as well as protection against impact hazards. These general-use spectacles are available in a wide range of sizes and models, with frames of wire or colored plastic, with and without side-shields. Glass safety lenses may be clear or dark, in plano, prescription or bifocal.

For details, use **Key # EP-2** on inquiry card on page 1.



SAFETY-CAP-WITH-GOGGLES

Newly developed, lightweight side arm attachments for combining safety caps with goggles are available from Fibre-Metal Products Co. They enable quick connect-disconnect of goggles with most Fibre-Metal welding helmets, face shields or masks. The combination illustrated is for workers who require full time head protection with intermittent eye protection. The solo goggle, when not in use, is merely extended over the cap to rest anywhere on the cap but out of the way. Tension of the telescoping aluminum side arms can be adjusted for full comfort.

For details, use **Key # EP-3** on inquiry card on page 1.

EYE PROTECTION DEVELOPMENTS

ALL-NYLON UTILITY SPECTACLES

Gateway All-Nylon Utility Spectacles recently introduced by American Industrial Safety Equipment Co. are designed for high impact and pierce resistance. Practically indestructible under normal usage, non-flammable, lightweight (less than ¾ oz.). Made of nylon with interchangeable lenses, they meet Government Specifications. Lens life can be prolonged indefinitely by buffing. Available with side shields and clear replaceable lens, or with green replaceable lens, with or without side shields.

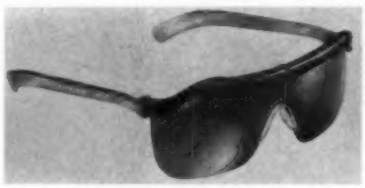
For details, use **Key # EP-4** on inquiry card on page 1.

FLEXIBLE MASK GOGGLES

Improvements have been made in the American Optical Co.'s line of flexible mask goggles to make them even more safe and comfortable. The new goggles feature: new snap buttons to hold lens securely in frame (Lens will not pop out, but can be removed easily for cleaning or replacement); new recessed slots

at sides of cups to fit over temples when worn with safety or personal prescription glasses (These keep the mask from bulging away from the face, assure snug fit); increased eyecup depth to give additional ventilation; wider edge of mask which molds to contour of face. These improvements are featured in all models of the lightweight, well ventilated impact, chemical, welders' and chippers' goggles.

For details, use **Key # EP-5** on inquiry card on page 1.



NEW VISITOR'S GOGGLES

A lightweight, inexpensive attractive goggle for plant visitors is being offered by Pulmosan Safety Equipment Corp. The G-531 Visitor's Goggle has a smoke gray acetate frame and temples. Spatula type temples are designed for comfort. The large acetate lens, clear or green, has a nose pad for comfort without distortion. Temples can be imprinted with your company name at low cost.

For details, use **Key # EP-6** on inquiry card on page 1.

NEW WELDING HELMET

A new Warrior welding helmet featuring exclusive headgear with five fast, easy adjustments to any head or position requirement, is announced by Welsh Mfg. Co. Design eliminates need for bolts, screws, washers or nuts in headgear-to-helmet assembly. Headgear has pressure sensitive foam sweatband. Fixed-front and lift-front frames are readily interchangeable between straight and curved fiberglass shells, permitting a broad helmet line with minimum inventory: 4 welding helmets, 2 handshields and 4 helmet-safety-cap combinations.

For details, use **Key # EP-7** on inquiry card on page 1.

NEW CABINET BOTTLES FOR LENS CLEANERS

Special molded cabinet bottles have been announced by The Wilkins Co., Inc. for their K-LENS-M line of lens cleaning and anti-fogging liquids. The 8 oz. special molded linear polythylene bottles eliminate breakage and overcome the glass hazard which must be avoided in food processing and similar industries. In addition, the new bottles, holding ⅓ more liquid, are 2 lbs. per dozen lighter in weight, resulting in savings in shipping costs and handling.

For details, use **Key # EP-8** on inquiry card on page 1.

NEW LINE OF FACE SHIELDS

The new Musketeer headrest carries a choice of four types of face shield visors which fasten to the front of a wide spark deflector, pivoted to the headband. Adjustable cross strap and headband are one-piece molded nylon. Nylon friction pivots lock shield in any position or allow free up and down movement. The Musketeer is available with: fiber visor with welding

lens for scarfing, furnace work and heavy gas welding; metal-bound plastic visor in various depths, and a wider, all-plastic visor, both in clear plastic and in shades of green, for use in metal pouring and finishing, spot and flash welding, woodworking, etc.; and a 24-mesh wire screen visor for furnace work and drop forging. Made by Jackson Products.

For details, use **Key # EP-9** on inquiry card on page 1.

NEW EYESHIELD DESIGN

New, low-cost eyeshield for chipping or welding has been developed by Dockson Corp. Known as the Chiporweld Eyeshield, this lightweight, sturdy eye protector has a one-piece, pliable molded-plastic frame which rests low on the face for a broader field of vision. Edges have flange-cushions, and the nose cradle is cupped to distribute pressure. Has adjustable elastic headband. The eyeshield may be used with or without prescription glasses. Its new baffle design lets air circulate freely, but prevents foreign particles and light from entering. Plastic spacer frame between lenses prevents fogging. Clear lenses for chipping and green lenses for welding are interchangeable.

For details, use **Key # EP-10** on inquiry card on page 1.

SIDE SHIELDS FOLD FLAT

New safety frames with soft vinyl side shields that fold flat against the frame for convenient storage in pocket or carrying case, then "remember" to open up for full side-shield protection have been announced by Watchemoket Optical Co., Inc. The soft side shields con-

form to facial contours, the temples telescope in and out, and a universal nosebridge assures proper fit and protection. Total weight of the new Rapido Fold Flat Model—including glass or plastic lenses—is less than two ounces. Protection is afforded against flying particles, dusts, sparks and harmful light rays. Green frames and lenses provide stand-by protection in welding areas.

For details, use **Key # EP-11** on inquiry card on page 1.

WELDING HELMET WITH NEOPRENE LENS HOLDER

A new welding helmet, announced by Chicago Eye Shield Co., features a moulded neoprene lens retainer which mounts on the fibre glass helmet without fasteners of any type. This, in combination with other features, eliminates all electrical conductivity between the exterior and interior.

The retainer accommodates the 4½" x 5¼" size lenses. Wearers of bi-focal glasses have an increased downward viewing area. A choice of conventional glass plates or Plasti-Weld (plastic) filters may be used. The helmet is said to be seven ounces lighter than helmets with glass lenses and metal retainers of the same size. The rubber retainer prevents breakage of lenses if helmet is dropped, and reduces heat transfer.

For details, use **Key # EP-12** on inquiry card on page 1.

5 STYLES OF SIDESHIELDS

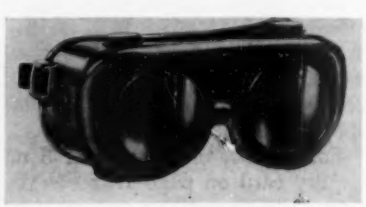
Willson Products announces its popular Monospecs are now available with any of five styles of side-

shields. The safety specs have a one size bridge construction, nose pads and bridge with a continuous comfortable bearing surface, two lens sizes, and spatula or plastic-cable temples. The new sideshields come in clear flesh or green color plastic (perforated or unperforated) and plastic bound 20 mesh wire screen. Illustration shows flesh colored perforated sideshields, clear Super-Tough (6 curve) lenses, and plastic-cable temples.

For details, use **Key # EP-13** on inquiry card on page 1.

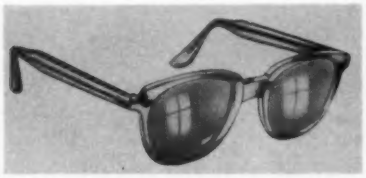
PLASTIC WELDING GOGGLES

Soft vinyl plastic goggles which feature a protective vinyl noseguard and unbreakable nylon insert have been announced by Glendale Op-



tical Co. The goggles mold comfortably to face contours and fit with ease over prescription glasses. Other features include six lightproof indirect ventilators to eliminate harmful light rays and fogging, removable rings and Glenweld filter lenses.

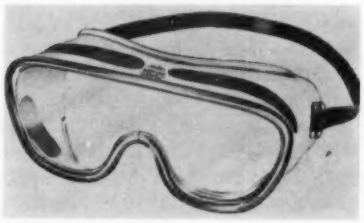
For details, use **Key # EP-14** on inquiry card on page 1.



NEW SAFETY GLASSES FRAMES

A plastic frame safety glasses line that features a universal bridge design has been developed by Sellstrom Mfg. Co. who claim the product will fit nine out of 10 faces without adjustment. Sell-Fit glasses are built around a broad and continuous bearing surface for the bridge area for maximum comfort, even weight distribution and always-secure support. Offered in a choice of the popular broad-styled spatula temples or the improved vinyl coated cable temples. Available with side shields.

For details, use **Key # EP-15** on inquiry card on page 1.



VENTILATED, FLEXIBLE GOGGLES

U. S. Safety has announced an innovation in light, more comfortable all-plastic goggles with the new Compact Airflow Flex Line. A special design allows maximum ventilation to prevent fogging, combined with maximum protection from chemicals, dust, and other eye hazards. Flexible, soft vinyl plastic frames provide a snug fit with maximum comfort on the face. A new, improved design permits fast lens changes without the use of special tools. All lenses are optically correct and the goggles meet all Federal Specifications. The new goggles will fit over the widest personal glasses.

For details, use **Key # EP-16** on inquiry card on page 1.

(For details, use Key # F-12 on card on page 1)

ANTI-FOGGANT CLEANER

A double action cleaner and antifoggant for glass and plastics is being marketed by International Latex Corp. Eyes Right has controlled surface tension which results in maximum dispersion and penetration of the liquid; it frees and floats all trapped dirt to the surface to be wiped away, the maker states. When water vapors come in contact with treated lenses, the surface tension of the water is lowered and it cannot coalesce to form fog. Contains no glycerine or silicone and does not smear. For office or factory use, packaged in a handy, compact wall cabinet; also comes separately in non-breakable polyethylene bottles.

For details, use **Key # EP-17** on inquiry card on page 1.

VENTILATED WELDING GOGGLES

Two economical welding goggles, providing protection against a wide range of eye hazards, are being marketed by Air Reduction Sales Co. The Airco-Ajax gas-welding goggle is designed for use in gas

welding, cutting, burning and furnace operations, while the Ajax super cover goggle is intended for wear over spectacles during similar operations. Both types have ventilated side-shields which keep out stray light and metal splashes and prevent lens fogging. Headbands are easily adjustable. Eyecups for the gas-welding goggle are individually shaped with contoured surfaces for greater operator safety and comfort.

For details, use **Key # EP-18** on inquiry card on page 1.

NEW SAFETY SPECTACLES

U. S. Safety presents a new 3-D Line of safety eyewear. Special features include: new style temples, having a three dimensional appearance, with over two square inches of bearing surface for a better fit; 5-barrel temple hinge which allows interchange with temples and frames of most major brands; a new Lok-Tite temple screw; new two-tone styles in popular industrial colors. Also featured are solid colors in high-lustre frames with matching color or anodized aluminum temples. Available with cup or flatfold sideshields and with Optilite or heat treated safety glass lenses in either plano or prescription. Meets the A.S.A. Safety Code and all Federal Specifications.

For details, use **Key # EP-19** on inquiry card on page 1.

CHIN-PROTECTING SHIELD

From General Scientific Equipment Co. comes a new face shield for protecting eyes, face and the under-chin area. Particularly adapted to operations where spashing is a problem, its primary use will be by the chemical and oil industries and wherever full face coverage is required against acids, chemical sprays, foreign particles and other fragments. Worn with a safety helmet, the lightweight shield gives full, wide, unrestricted vision. The head gear of the Mark I fits all safety helmets, and is 16″ x 9″, with .040″ thick visor for impact resistance. Other sizes can be made for special applications.

For details, use **Key # EP-20** on inquiry card on page 1.

SAFETY SPECTACLE LINE

New eyewear, combining maximum protection with distinctive appearance, has been introduced by Mine Safety Appliances Co. The Sightgard glasses, in complete size range, are available in metal, acetate, and acetate-on-metal frames; various temple styles; and rigid and adjustable nose pads. Side shields are provided in a perforated wire mesh, insulated wire mesh, a solid acetate, or a perforated acetate. Also featured is a universal bridge for simplified stocking and fitting.

Many types of lenses, covers, and plates are provided including clear lenses in the standard S-7 shape; lightweight plastic lenses where pitting is a problem; and ultra-filter

lenses for glare and impact. Round 50mm lenses and plates for chipper and welder eye protection; for filtering of sodium glare; for pitting and spatter; and for use in visual reading of melt condition in steel operations. Also available is a complete "package" prescription service.

For details, use **Key # EP-21** on inquiry card on page 1.

FLEXIBLE SAFETY GOGGLE

A new safety goggle from Welsh Mfg. Co. features a soft, flexible frame which cushion-fits to face. All plastic vents—open louvered front and rear for dust conditions, and open louvered rear only for splash conditions, eliminate corrosion and electrical contact problems and provide greater ventilation and visibility. Available in clear or green frame with clear or green single lens.

For details, use **Key # EP-22** on inquiry card on page 1.

SAFETY SPECTACLE LINE

A new line of six basic models of safety glasses, called Durasafe, has been introduced by American Optical Co. Available in a range of sizes and colors, and accenting a new wider temple of anodized aluminum, the glasses feature a seven barrel hinge, said to make frame-temple junction 40% stronger. Duragrip screw construction keeps temples permanently tight. Wider endpieces give more strength because of greater temple surface; Lock-A-Lens, a new safety ridge tends to hold the lens in place better under impact; and non-reflecting mesh side shields give comfort and safety.

For details, use **Key # EP-23** on inquiry card on page 1.

LIGHTWEIGHT FACE SHIELD

Designated Feather-Lite F-90, a low-priced face shield made by Fibre-Metal Products Co. weighs only 3¼ ounces complete with a 6″ x 11½″ x 0.020″ window. It features replaceability of any of its parts and enables the use of a great variety of windows or screens. Headband (adjustable in ⅛ths from 6⅝ to 8) of pliable polyethylene assures perfect fit and may be cleaned with any detergent or soap. The vulcanized fibre deflector will accommodate even the largest spectacle frames. Window-deflector section pivots easily and remains secure.

For details, use **Key # EP-24** on inquiry card on page 1.

INSTANT RELIEF FROM ITCHING

For Poison Ivy & Oak . . . Bullard's Formula

Odorless, greaseless, safe to use on any part of the body—Bullard's Formula brings immediate relief to Poison Oak and Ivy sufferers. It forms a protective film over irritated skin areas, preventing spreading and checking weeping lesions.

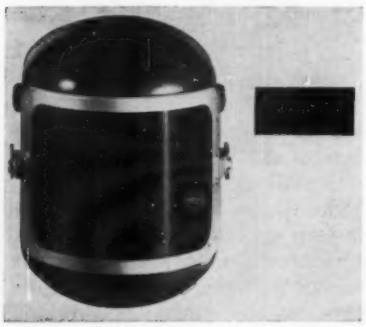
Catalog #R29A — 1 oz. plastic vial. #R29 — Three 1 oz. plastic vials in double unit pack.

Write for Data Sheet #100—"Hectorite in Bullard's Formula."

(For details, use Key # F-13 on card on page 1)

PLASTIC FILTER FOR ARC WELDING

Plastic-weld filters remove the harmful ultra-violet and infrared rays of arc welding and filter them to the same degree as the standards set for glass in Federal specifications. Available from Chicago Eye Shield Co. in the standard 2″ x 4½″ size and a 7″ x 11″ panoramic window version, these filters are said to outlast glass by 6 to 1 because of less breakage from dropping, impact and thermal shock. Suitable for conventional welding helmets.



For details, use **Key # EP-25** on inquiry card on page 1.

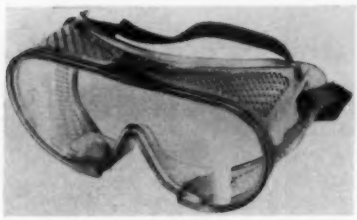
NEW FACE SHIELDS

New units designed for the wearer's safety and comfort, as well as easier adjustment and simpler maintenance, are available from Flood Safety Products Co. There is ample room for wearing safety glasses or goggles underneath. All the shields are equipped with interchangeable and replaceable windows, in either acetate, vinyl or brass screen mesh; high impact and fire resistant windows can also be furnished. The new face shields are equipped with Fit-Rite headgear which permits easier head size and crown height adjustments. Crown material is fiberglass.

For details, use **Key # EP-26** on inquiry card on page 1.

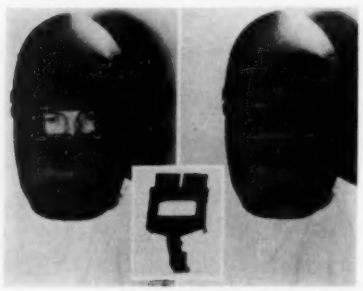
AGRICULTURAL SAFETY GOGGLES

Farmers require special types of eye protection because physical activity causes excessive perspiration, and extreme mobility of worker and hazard may limit the use of mechanical guards. For farmers, gardeners and home-shop workers, a new Willson MonoGoggle provides comfortable, wide-view protection against sawdust, cement dust, spraying, haying, corn-picking, painting, combining, chopping, feed-grinding, field dust, etc. It can be worn with respirator and over



prescription lenses. Replaceable, .060 plastic lenses come clear or tinted green. Soft, pliable vinyl frames, tinted or clear, have specially designed openings that let air circulate through the goggles and prevent fogging or chafing, while dust and dirt are kept out.

For details, use **Key # EP-27** on inquiry card on page 1.



JAW-ACTUATED WINDOW ON WELDING HELMET

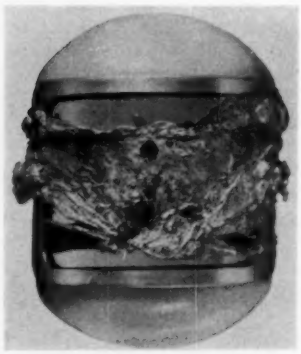
A welder's helmet which eliminates lifting of the visor from the face when the welder inspects his work has been developed by Auto-View Welding Helmet Co. Protective eye guard lifts from view with the workman's jaw motion, leaving a clear plastic area for viewing. Manufacturer cites increased safety factor, due to worker's not having to continually raise helmet while working, and better quality, due to elimination of drag bead, as well as scoring and mutilation by misguided arcs. Adjustable helmet is of fiber construction.

For details, use **Key # EP-28** on inquiry card on page 1.

CHEMICAL, CHIPPING AND WELDING GOGGLES

A new chemical goggle, announced by Bausch & Lomb, is made of molded rubber in Forest Green color, and is designed to be worn by welders and chippers as well as those working with chemicals. Acid resistant, the goggle has soft-rolled edges, is completely comfortable, yet fits the face securely. The new product features a large lens size, S-7 shape, providing wide-angle vision, and will fit over any modern eyeglass frame with ease. Available either with aluminum, non-corrosive vents (for welders and chippers) or without (for chemical workers).

For details, use **Key # EP-29** on inquiry card on page 1.



HEAT RESISTANT FACE SHIELD

A new type of window for face shields was tested with molten lead by the manufacturer, Chicago Eye Shield Co., to determine its heat resistant qualities. Called Multi-Ply windows, the new product was subjected to 6½ pounds of 635 degree molten lead for a period of 45 seconds. Though the hot lead was poured on the same spot, the company reports that none of it penetrated the window. Available in six basic face shields featuring fiber glass crowns and shells.

For details, use **Key # EP-30** on inquiry card on page 1.

WIDE VISION HELMET

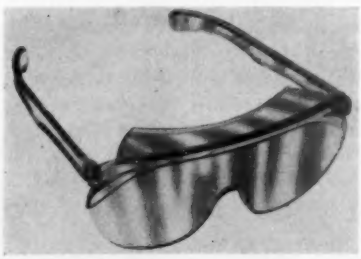
The new, wide-vision welding helmets, manufactured by Flood Safety Products Co. provides a large-view, lens opening of over 19 square inches. Lenses are seated in a leak proof, non-conductive, neoprene holder. Cover lens can be taken out and replaced easily.

Metal splash or spatter "bounces off" and does not adhere to holder which is both impact and fire resistant. Available in fiberglass or vulcanized fiber and with snap-in Fit-Rite headgear or safety cap which have identical mountings and are interchangeable.

For details, use **Key # EP-31** on inquiry card on page 1.

LIGHTWEIGHT SAFETY SPECTACLE

Inexpensive, lightweight industrial eye protection that can be worn all day with ease and comfort,



even over prescription glasses, are features of a new VS3 Visitor Spec. from Willson Products.

The design combines utility and modern styling, and gives frontal eye protection against light impacts, foreign particles, or dust hazards. Also suitable for woodworking,

buffing, spot welding, inspections, etc. The glasses are available with green lens for protection against heat and harmful glare. The wide brow rest and .080 inch thick lens is of one piece construction for more dependable service. Library type temples are universal fitting for any size or shape head.

For details, use **Key # EP-32** on inquiry card on page 1.

PLANT VISITOR'S SPECTACLE

Inexpensive eye protection for visitors to industrial plants, in the form of a lightweight, all-plastic spectacle, is being manufactured by American Optical Co. The device offers a wide area of coverage through a shield-like single lens which covers both eyes. Lenses are available in either clear or green in a clear crystal frame.

For details, use **Key # EP-33** on inquiry card on page 1.

LENS CLEANER CONTAINER

A new, high density polyethylene gallon container for their liquid lens cleaner, K-Lens-M, has been announced by Wilkins Co. The square shaped receptacle, supplied by Plax Corp., weighs less than the glass jug previously used, for greater economy in handling and shipping, and is shatterproof; it has a phenolic cap. It is also said to require 37% less storage space than its predecessor.

For details, use **Key # EP-34** on inquiry card on page 1.

NEW SAFETY EYEWEAR

Acetate frame safety glasses, especially designed to permit simplified inventory stock as well as fitting the average employee, are available in a new line from Bausch & Lomb. Frame features a one-size pressure-free saddle bridge for all three eye sizes, and is available in two popular colors. Shallow-form permanent nose pads distribute weight evenly.

The Y-15 and T-16 are available in a choice of three temple styles: Acetate spatula, acetate cable and metal spatula. The new eyewear features Bal-Safe lenses in clear or Ray-Ban shades. Side shields can be quickly attached for added protection.

For details, use **Key # EP-35** on inquiry card on page 1.

Phone System
(from page 20)

communication is available. Typical examples are the repair or operation of goggle valves under conditions where gas is present.

Also, the units have proved valuable in the maintenance of large gas mains where crews are often out of visual communication. Without the sound-powered wire systems, these operations alone would require use of several watchers to maintain adequate safety precaution for working groups.

Pictures by courtesy of Mine Safety Appliances Co.

SAFETY by HAWS

HAWS SAFETY FOUNTAINS

Wash harmful fuels and chemicals from eyes and facial areas, instantly! Prevent discomfort and serious injury. Units may be wall or pedestal mounted; with hand or foot operated quick-opening valves.

7900 Series—Maximum coverage eye/face-wash. 6 spray outlets in extra large stainless steel bowl set up soft, drenching mist for positive first aid. Large hand valve.

7100 Series—Eye-wash sends pressure-controlled streams from chrome plated brass heads. Acid-resisting enameled iron bowl.

7700 Series—Eye/face-wash simultaneously sprays water from perforated copper ring and fountain heads. Stainless steel bowl.

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Model 8590—Multiple Nozzle Shower instantly drenches victim from all angles. Large hand valve.

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Veterans of Safety Elect

The Veterans of Safety held their annual election for the N. Y. Metropolitan Chapter at the Hotel Statler during the 31st Annual Convention and Exposition. Gordon P. St. Clair, National First Vice President was present representing the national organization and spoke at length on the aims and activities of the organization, stressing the need for increased membership to assist in further expansion. The following officers were elected: Harold C. Mesch, Chairman, Francis T. McGowan, Vice Chairman, Arthur F. Fuller, Secretary and Carl F. Olander, Treasurer. Executive Committee Nominees were Thomas J. Berk, William J. Hyland, Walter C. Legge, Robert A. McVety, Edgar G. Quesnal, Albert E. Walker and William C. Crager.

Solvents Terms

The terms being defined by the American Society For Testing Materials Committee D-26 on Halogenated Organic Solvents reveal the area of interest of the committee and include safety solvents, toxicity, dermatitis, occupational dermatosis, health hazards, combustibility, flammability, etc. In the solvents industry, a major objective is safe use of cleaning solvents. This means minimizing both toxicity and flammability hazards. The committee will make a big contribution toward assisting the solvent-using industries in the safe handling of solvents by publication of a manual on vapor degreasing which is expected within the year. The manual will cover the major considerations involving vapor degreasing equipment, the handling and use of solvents, and general aspects of vapor degreasing. Since the manual is being prepared by a balanced group of equipment and solvent producers and users, it should reflect the best thinking in the industry on this subject.

In the missile industry there are problems in cleaning out empty fuel systems, particularly those which contained liquid oxygen. The solvents used for this purpose must be exceptionally free of impurities or suspended particles, and the committee is developing a specification for trichloroethylene for this type of application.

Elsewhere in the committee, other uses of solvents are being considered, particularly cold cleaning. One group is working toward a manual on cold cleaning which will cover methods of use—that is, spray, dip, wipe, ultrasonics; end-use applications, including the substrate materials being cleaned; and types of solvents and their physical and chemical properties. The manual will also set conditions of use from a safety point of view including problems of flammability and toxicity.

THE FUTURE SHOWS

New York, N. Y. *June 12–16*

Air Pollution Control Association Annual Meeting (Hotel Commodore).

Hartford, Conn. *June 13–14*

Sixteenth Annual Safety Conference and Exhibit of The Connecticut Safety Society (Statler Hilton Hotel). Charles A. Wooding, Conference Chairman, c/o Wallingford Steel Co., Wallingford, Conn.

Boulder, Colo. *June 28–30*

Second Joint Automatic Control Conference (University of Colorado). Ira S. French, Public Relations Director, Instrument Society of America, 313 6th Ave., Pittsburgh 22, Pa.

Los Angeles, Calif. *July 18–20*

Second Western Plant Maintenance and Engineering Show and Conference (Pan-Pacific Auditorium). Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

Greensboro, N. C. *September 12–14*

Third Annual Southeastern Plant Maintenance & Engineering Exposition (War Memorial Coliseum). John Harden Associates, P. O. Box 3173, Greensboro, N. C.

New York, N. Y. *September 25–28*

Second Industrial Building Exposition & Congress (Coliseum). Clapp & Poliak, Inc. 341 Madison Ave., New York 17, N. Y.

Philadelphia, Pa. *September 26–28*

Sixth Annual Sanitation Maintenance Show (Hotel Sheraton). Leonard S. Rogers, Manager, Sanitation Maintenance Shows, Inc., 310 Lexington Ave., New York 16, N. Y.

Chicago, Ill. *October 16–20*

Forty-Ninth Annual National Safety Congress & Exhibition (Headquarters at Conrad Hilton Hotel). R. L. Forney, Secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

The Firestone Tire & Rubber Co. and 16 separate divisions of the company will receive National Safety Council Awards for excellent safety records in 1960. Presentations are made on the basis of improvement over the safety performance average of the three previous years, according to M. R. Batche, manager of safety for Firestone manufacturing plants.

The Award of Honor, the highest honor given by the Council, will be presented to the Buenos Aires, Argentina, textile plant; the Gastonia, N. C., textile plant; the Los Angeles, Calif., Guided Missile division; and the Quincy, Ill., Electric Wheel Company division.

An Award of Merit, the second highest presentation, will be given to Firestone for all plants on a company-wide basis.

A similar award will be given to to the Akron Mechanical Building; the Buenos Aires tire plant; and plants in Bombay, India; Brentford, England; New Bedford, Mass.; and Orange, Tex.

Certificates of Commendation will be awarded to the Akron Research Laboratory; the Bennettsville, S. C., textile plant; the Los Angeles Industrial Products plant; Memphis, Tenn., Xylos plant; and the Woodstock, Canada, textile plant.

The Los Angeles Coated Fabrics division will receive a President's Letter from the National Safety Council.

• • •

The U. S. Army Headquarters Quartermaster Research & Engineering Command Center in Natick, Mass., has been awarded the Quartermaster Safety Award for completing one million man-hours without a disabling injury. The presentation of a safety trophy to Safety Director Roland N. Genest was made by Brigadier General Merrill L. Tribe.

• • •

C. H. Leavell & Company's annual safety achievement award recipient is James F. McCann, a project manager for the El Paso-based contractor and construction engineering firm. McCann won his company's top annual award for work on company projects at White Sands Missile Range, N. M. He now is assigned to Leavell's Titan Missile complex project, nearing completion in South Dakota.

• • •

Kaiser Aluminum & Chemical Corporation's Dolton Works was awarded the coveted "Kaiser Cup" for having the best safety program in the company for 1960, President D. A. Rhoades has announced. During the 12-month period, the Dolton plant amassed 1,300,000 man-hours without a time-lost accident.

Mr. Rhoades said, "Not only did they perform the entire year without a disabling injury, but their over-all safety programming and performance were truly excellent."

Factors considered in the contest included each plant's injury experience, safety committee activities, housekeeping, hazard control,

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(For details, use Key # F-16 on card on page 1)

safety manuals, safe practices and off-the-job safety programs for the plant area. The award was presented to plant manager R. C. Hogan, plant safety supervisor W. J. Hawk and the employees of the Dolton Works by management representatives from the company's headquarters in Oakland, Calif.

• • •

Willson Products, leading manufacturer of industrial safety equipment, has won an American Society of Safety Engineers' award for outstanding service to safety. Willson is conducting a series of distributor safety schools at its Reading, Pa. headquarters. These safety "clinics" include classroom instruction, plant tours and round table discussions on four dimensions of safety: eye, hearing, head and respiratory protection.

The clinics equip Willson representatives as professional safety counselors, and enable them to give latest information on safety products, programs and techniques.

• • •

Employees of the Norfolk Plant, Smith-Douglass Company, Inc., Norfolk, Va., were presented with the Company's Presidential Safety Trophy for the year 1960 recently as an award for their top safety record among the 15 plants. This trophy was awarded on a points earned basis. Points accumulate during the year based on total manhours worked, safety inspections and fire drills conducted, safety meetings held, and with deductions of points for medical cases or lost time accidents. Mr. G. T. Newnam, Safety Director for the Company, presented the trophy to Mr. L. M. Hanbury, Plant Superintendent, who accepted it on behalf of the employees.

• • •

General Manager A. R. Luedecke, of the Atomic Energy Commission, has commended managers and employees of AEC plants and laboratories for efforts during 1960 which resulted in the achievement of the safest year in Commission history. More than 120,000 workers are employed in these installations.

Mr. Luedecke noted, however, that the occurrence of several deaths in AEC operations in 1961, including those of three men in an accident at the SL-1 reactor at the National Reactor Testing Station in Idaho in January, indicates the need for continued safety vigilance.

Nine contractors received the Award of Honor for having achieved over three million man hours without any injury to their employees. One of these—the Sandia Corporation plant at Albuquerque, New Mexico,—achieved a total of 14,936,000 man hours for the best record in AEC history.

The lost-time injury frequency for all AEC operations was 1.68 injuries per million man hours worked, or 20% below the 1959 figure of 2.11 injuries per million man hours and 14% below the previous best year of 1957 when the rate was 1.96.

• • •

Steelworkers were safer on the job than ever before during 1960, American Iron and Steel Institute has announced. The number of lost time injuries per million manhours worked came to a record low of 3.14, down 10 percent from the 3.51 rate of 1959. The previous record low was 3.21 accidents per million manhours, set in 1958.

The severity of injuries to workers in iron and steel plants also decreased during 1960. Measured in days lost per million manhours worked, last year's rate was 742 as against 915 during 1959, representing a 19 percent decrease. Last year's experience is the second best on record in accident severity, comparing with the low of 728 set in 1958.

Safety experts attribute a part of the 1960 improvement to the intensive training being given by companies to their employees.

• • •

The safety contest, run through national headquarters of the Institute of Scrap Iron & Steel in Washington, D. C., is designed to help reduce the volume of accidents in iron and steel scrap processing yards by making management and employees more safety conscious. The Northern Ohio chapter presented Certificates of Safety Achievement, for having no accidents during the period of the contest (Jan. 1—Oct. 31, 1960), to: Jack M. Levine & Son Inc., Cleveland; Steel City Iron & Metal Inc., Youngstown; Consolidated Steel Co., Youngstown; Frank Sherman Co., Youngstown; The I. A. Barnett Co., Barberton; The National Iron & Metal Co., Canton; and Morris Wilkof Co., Canton.

A Letter of Safety Commendation went to Ace Steel Baling Inc., Toledo, for having an accident rate which was lower than the national average as established by the contest.

The Southeastern chapter has presented Certificates of Safety Achievement to: H. O. Forgy & Son, Jackson, Tenn.; Rubenstein & Co., Union City, Tenn.; and L. Miller & Son Inc., Huntsville, Ala.

Letters of Safety Commendation went to: Chatham Iron & Metal Co., Savannah, Ga., and Cline & Bernheim, Nashville, Tenn.

The Capitol District chapter has presented a Certificate of Safety Achievement, for having no accidents to Hudson Scrap Iron & Metal Co., Albany, N. Y.

PORT-O-RUNG
U. S. Patent 2,945,549
Foreign Patents Pending
Auxiliary rungs to replace any rung, and any number of missing rungs, in all permanently installed upright ladders.
GAGNON ENTERPRISES
77 River Street, Hoboken, New Jersey
SWarthmore 2-0662
(For details, use Key # F-17 on card on page 1)

inside the trade

BOBRICK DISPENSERS, INC., of New York and Los Angeles, has announced the appointment of *E. A. Miller* as Architectural Representative for Chicago and the state of Illinois with offices in Chicago, at 6140 Gunnison Street. Mr. Miller will serve as liaison between the Bobrick organization, pioneer manufacturers of soap dispensing equipment, and architects and engineers. He had formerly been associated with the Crane Co. and Skymotive Corp.

R. M. Edmiston

C. C. Albrecht

F. T. Ashe

AMERICAN OPTICAL CO. has announced three new appointments in its Safety Products Division.

Robert M. Edmiston is now sales manager of the division. A graduate of the University of Pennsylvania, he joined the company in 1946 as a safety sales representative, and since 1957 has been New York District Sales Manager.

Charles C. Albrecht has been named general product manager of the Safety Products Division. A graduate of Moravian College, he served as safety supervisor of Bethlehem Steel Co. from 1940 to 1945 when he joined American Optical as a safety engineer. He has served in various capacities in the Safety Products Division, most recently as manager of engineering services.

Frank T. Ashe has been appointed New York District Sales Manager of the Safety Products Division. He joined the company in 1945 in the Accounting Department and, in 1948, transferred to the Safety Products Division. Since 1953, he has been manager of safety accessory sales.

T. Thorsen, President of *LUXO LAMP CORP.*, announced the appointment of *Sam F. Blake, Jr.*, as Vice-President, Eastern Sales. Mr. Blake has been associated with Luxo for a period of 3 years as Eastern Sales Manager.

The company has also announced the appointment of *Robert Rubin* as Manager of the Western Division. Mr. Rubin, successor to the late Milton E. Begen, has been associated with Luxo's Eastern Division for the past four years. He previously worked with Mr. Begen on the West Coast. Mr. Rubin will be responsible for all West Coast sales activities for the Luxo line of adjustable, portable lighting, magnifying and hospital fixtures.

THE PIPE LINE CHEMICAL CO. of Dallas, Texas announced the promotion of *John A. Bell, Jr.* to Regional Manager of the firm's South-Central Texas District. Named as his assistant was *J. Timothy Roche*. Both are headquartered at Austin, Texas. The company makes safety and maintenance chemicals for the oil and gas industry.

BALTIMORE PAINT & CHEMICAL CORP. recently announced the acquisition of the *ALIM CORP.*, New York City, as a wholly owned subsidiary. According to Albert A. Shuger, Chairman of the Board of Baltimore Paint, this move will realize the full sales potential of Alim through Baltimore Paint's extensive distribution channels. Mervin Alembik, former President of Alim, will continue to direct the operation, including the marketing of Alim's fire extinguishers and fire-retardant paints.

THE CARBORUNDUM CO. and its subsidiary, *Pacific Abrasive Supply Co.*, have moved their offices and stocks to a new $1½ million Abrasive Service Center at 2240 South Yates Avenue, Los Angeles, California.

Ronald E. Collins has been appointed President of *VACCULATOR CO., INC.*, manufacturer of industrial dust collection equipment. The company recently moved from New York to new quarters in Newark, N. J.

The Air Pollution Control Division, JOHN WOOD COMPANY, Florham Park, N. J., announced the appointment of *Hampton Engineered Equipment Co.* as sales representatives for the New York State and Connecticut area. Hampton,

Ends Static Hazards!
Resists Acid Damage!
100% Dynel

UNION MADE
CHEM-WEAR
Anti-Static Acid Resistant

WORK CLOTHES

Safe, nationally advertised CHEM-WEAR work clothes are always comfortable. They can be easily laundered without discoloring and will give long service. Wear CHEM-WEAR Shirts, Trousers, Coveralls, Laboratory Coats, Work Aprons and be safe.

HOODED COVERALLS

For Boiler Maintenance Men
Completely covers from head to foot
Adjustable hood and legs

Write for New Catalog

Quality Since 1896

If Not Available at Your Safety Dealer Write to

M. SETLOW & SON, Inc.
PLANTS: ORANGE, CONN. & PROSPERITY, S.C.
Mailing Address: P.O. BOX 1784, NEW HAVEN, CONN.

(For details, use Key # F-18 on card on page 1)

USE HAV-ALIFT SALT AND BEAT THE HEAT

Hav-a-Lift Salt and Salt & Dextrose Tablets, in all plastic "throw away" dispensers, remain the most popular, slow-dissolving Salt Tablets on the market.

These Coated Tablets are now available in every area, so write today for complete information and the name of our Distributor nearest you!!

A. E. HALPERIN CO., INC.
75 NORTHAMPTON ST., BOSTON 18, MASS.

(For details, use Key # F-19 on card on page 1)

with offices at 50 Church Street, New York City, will handle the line of scrubbers, cyclone and fabric filters and other equipment.

F. S. Buckley

F. S. Buckley was elected President of the Fire Equipment Manufacturers Association at a recent meeting. Mr. Buckley is Manager of Marketing, Industrial and Marine Division, *Walter Kidde & Co., Inc.*, (Belleville, N. J.)

Elected to F.E.M.A. posts at the same meeting were: *R. E. Sexmith* as First Vice President (associated with the *Ansul Chemical Co.*, Marinette, Wis.); *A. C. Trautwein* as Second Vice President (associated with *The Fyr-Fyter Co.*, Dayton, Ohio); and *J. A. Proven* as Executive Secretary (F.E.M.A., Evanston, Ill.).

Members of the F.E.M.A. Board of Directors are: Messrs. Buckley, Sexmith, Trautwein, *R. L. Weir* of the *Elkhart Brass Mfg.*, and *Stewart Boal* of *Randolph Laboratories, Inc.*

Appointment of *L. A. Miller* as vice president of marketing for *CENTRAL SCIENTIFIC CO.*, Chicago was announced by Ralph C. Read, president of Cenco Instruments Corp., Central's parent company. Miller, who joined the company in 1959 as director of marketing, is in charge of all marketing and sales functions in the U. S. and Canada.

Earle M. Scott, President of *SCOTT AVIATION CORP.* of Lancaster, N. Y., has announced the appointment of Fredric Flader, formerly Director of Engineering Laboratories at the University of Miami, to head up a unique Research and Development Center of the Corporation at Boca Raton, Florida. An initially small development group will be comprised of retired and semi-retired Engineers, representing a pool of unusual knowledge, experience and creative ability.

Eight firms with a total of 14 manufacturer's representatives have been named by the *ARMSTRONG CORK CO.* to handle the company's new line of flooring maintenance products developed for use in commercial and institutional areas. Armstrong has organized a completely new and separate distributing system consisting of manufacturer's representatives who will sell to selected janitorial and institutional supply houses. The 14 manufacturer's representatives are currently establishing distributors in their areas. The firms named by Armstrong are: James and Cooper Company, Dallas; Aaron E. Levine, Detroit; Walter Lewis & Company, Winthrop, Mass.; The Martin Company, Chicago; Norbert Jeffrey, St. Louis; Bernard Karsch, Flushing, L. I., New York; Wallace MacMaster, Cleveland; and Sol C. Novack, Philadelphia.

The Air Pollution Control Division, JOHN WOOD CO., Florham Park, New Jersey, announced the appointment of *Allan Hause Co.* as sales representative for the Cincinnati, Dayton and Toledo areas in Ohio. The Allan Hause Company, with offices at 901 Irving Avenue, Dayton, will handle the John Wood line of scrubbers, cyclone collectors and fabric filters.

Roy W. Pratt has been elected a vice-president of *ZENITH RADIO CORP. OF CANADA, LTD.*, by the board of directors. Pratt continues as manager of the hearing aid division, his assignment when he joined Zenith in August of 1947.

David Evers has been appointed Project Engineer, Sales Division, for *CAMPBELL CHAIN CO.* of York, Pa. A graduate of the University of Tulsa, and the R. C. A. Institute and Cleveland Institute of Electronics, he will work out of the West Burlington office of the company.

F. Rooney

E. Varnum

QUABAUG RUBBER CO. of No. Brookfield, Mass., announced at its annual meeting the election of two new officers; *Edward W. Varnum* as President, and *Francis C. Rooney* as Chairman of the Board. *Herbert T. Mason* former Chairman and President continues as Treasurer.

Mr. Varnum has been associated with the Company for the past 24 years, and has served as Vice-President and General Manager since 1948. He will continue to serve as General Manager.

Mr. Rooney, well-known and respected in the shoe industry, has been with the Company since 1917. During that time he has served in many capacities, and since 1948 as President. During the past decade the Company experienced a steady growth making it one of the leading producers of rubber soles and heels, and the world's largest producer of Neoprene soles and heels.

JACKSON PRODUCTS, Air Reduction Sales Co., has moved their entire manufacturing operation to a new plant at 5523 Nine Mile Road, Warren, Michigan. The new building, on a 195,000 sq-ft. site one mile north of Detroit, doubles the company's floor space.

LABELON TAPE CO., now a division of *Labelon Corp.*, has recently transferred its manufacturing facilities and headquarters to 10 Chapin St., Canandaigua, N. Y.

Safety Appointments

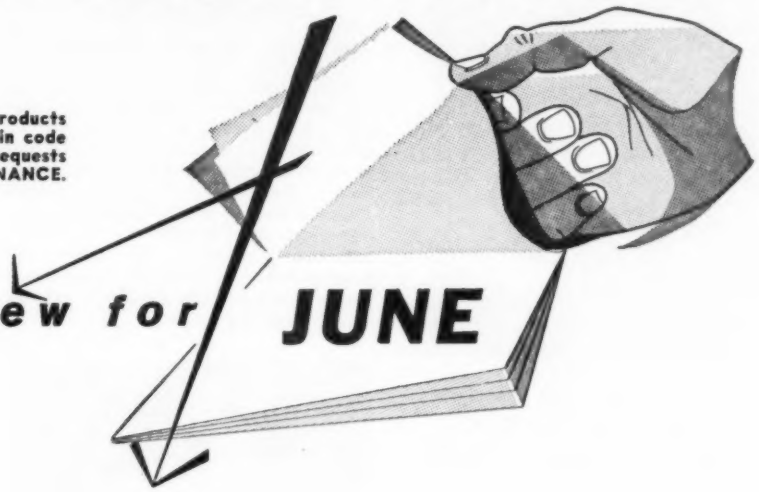
Dr. Valliant C. Baird has been named medical director of Humble Oil & Refining Company, principal operating affiliate of Standard Oil Company (N. J.). He has been chief physician of the company's Humble Division. Now serving as chairman of the Council on Industrial Health of the Texas Medical Association, Dr. Baird has also served as chairman of the Medical Advisory Committee of the American Petroleum Institute.

He is a former president of the Texas Industrial Medical Association, a fellow and member of the Council on Occupational Health of the American Medical Association, and a fellow of the American College of Preventive Medicine. He was graduated from Tulane University in 1925 and Tulane School of Medicine in 1928, and joined a Jersey Standard affiliate in Louisiana in 1931.

James S. Chapman has been appointed manager of safety for Armco Steel Corporation. He succeeds Campbell M. Allen, chief safety engineer, who is retiring after 43 years service with the company, mostly in the field of safety. Mr. Chapman joined Armco in 1937 after attending West Virginia Business College and Morris Harvey College. In 1946, he was named supervisor of personnel relations, and was promoted to assistant to the manager two years later. In 1960 he was transferred to Armco's general office in Middletown as assistant chief safety engineer. Mr. Chapman is a member of the safety committee of the American Iron and Steel Institute, the program committee of the metals section of the National Safety Council, and the American Society of Safety Engineers. He is a charter member of the safety committee of the American Mining Congress.

Material appearing in this section is published as information and is not intended to imply endorsement or guarantee by SAFETY MAINTENANCE.

To obtain descriptive literature of products listed, use Reader's Inquiry Card. Write in code number given each item. Send written requests to: Service Dept., SAFETY MAINTENANCE.



what's new for JUNE

NEW BURN KIT FEATURES AEROSOL MEDICATION

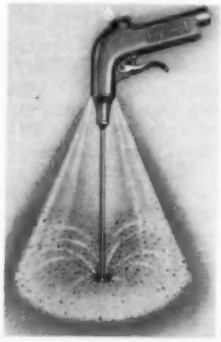
(Use Key # 638 on Inquiry Card on page 1)

THE HALCO Burn-Quel First Aid Kit, available from A. E. Halperin Co., Inc., is specially designed for locations where burn injuries are possible, such as foundries, welding areas, printing shops, labs, electronic work, etc. The kit features two Burn-Quel aerosol units for relieving the pain of burns and scalds and promoting the growth of new skin tissue. It also contains sanitary, unit-style packages of ammonia inhalants, adhesive tape, compresses, bandages, tourniquet & scissors, gauze pads, eye dressing, antiseptic cream, etc. The case is of non-rusting 20-gauge steel with round-corner construction. Weighing 4½ lbs., it has a carrying handle and two keyhole hangers.

MAGNETIC SWEEPER

(Use Key # 639 on Inquiry Card on page 1)

STEEL OR IRON parts, chips, filings, nails, tacks and other bits of ferrous scrap quickly removed from aisles, floors, walks, lots, roofs and drives with the new Sweeperette, a lightweight, hand-propelled rotary magnetic sweeper made by Eriez Mfg. Co. The new multi-purpose, nonelectric Sweeperette promotes both good housekeeping and safety in any business where small bits of ferrous scrap are dangerous or undesirable. Powered by a strong, permanent Erium magnet tube mounted on smooth-running neoprene wheels, the rotary magnetic sweeper has a five-foot offset handle which permits use without stopping. Pieces of ferrous scrap jump to the rolling magnetic tube where they evenly distribute themselves to a depth of ¾ inches. To unload, the magnetic tube is removed and cleared with an attached neoprene wiper ring. A detachable collection pan at the base of the handle speeds unloading. The magnetic tube is completely removable for use as a retriever magnet, small batch cleaner or hand magnet. Available in six sizes.



SAFETY AIR GUN

(Use Key # 640 on Inquiry Card on page 1)

GUARDAIR Safety Air Guns protect employees using air hoses from injuries to their eyes and skin cuts caused by flying chips and particles. The device forms a protective outer cone of air simultaneously with the center air stream. The outer air cone deflects any particles back into a limited area, thus preventing injuries from flying dust and chips. Available through Safety Mann Co., the safety air gun also has an accessory extension for the extremely hazardous operation of cleaning "blind holes" by air.

VOICE UNIT FOR GAS MASKS

(Use Key # 641 on Inquiry Card on page 1)

A MINIATURE voice amplifier for use in gas masks and other breathing apparatus is now in production at Chemprint Corporation. The device restores the voice of a person wearing a gas mask to its normal volume and intelligibility. Called the Chemprint Mark III, the voice amplifier fits any standard respiratory mask used in fire fighting, civil defense, police and rescue work, mining, etc. The entire unit can fit into the mask, or a separate speaker can be attached at belt level.

BUCKSKIN WELDER'S GLOVE

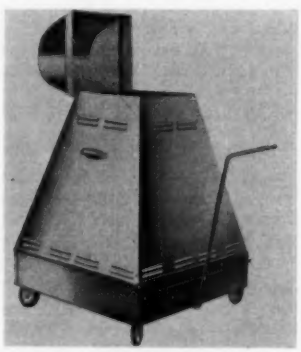
(Use Key # 642 on Inquiry Card on page 1)

A NEW welder's glove introduced by Singer Glove Mfg. Co. is made entirely of genuine buckskin. This soft supple leather is light in weight to give the welder the "feel" his fingers require, yet is bulky enough to insulate and give heavy duty service. Another feature is the one-piece back eliminating seams that shorten the life of the ordinary glove. The buckskin line includes gloves, mittens and a driver's type glove which is recommended for lighter welding operations and general work.

NEW WELDING CABLE AND HOSE PROTECTOR

(Use Key # 643 on Inquiry Card on page 1)

WEAR AND tear on the hoses and cable in Mig and Tig welding has always been a costly problem. The Singer Glove Mfg. Co. has designed a neoprene-coated sleeve that practically eliminates costly replacements and repairs. It comes in lengths to fit 9, 12½ and 25 ft. standard cable sizes and has a sturdy zipper for easy application. Named C. H. P. (cable and hose protector) this ingenious sleeve protects from damage caused by falling objects, trucks and kinks, as well as normal deterioration.



WHEELED INCINERATOR

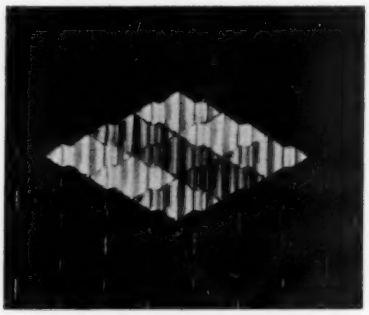
(Use Key # 644 on Inquiry Card on page 1)

A NEW 10-bushel capacity outdoor incinerator mounted on casters is announced by the Alsto Company. The new unit can be used as a trash receptacle and then wheeled outdoors. Trash may be burned safely outdoors within 10' of buildings. It will burn waste paper, packing, cartons, sweepings, food scraps, rags—burnable refuse of all kinds to a fine ash in any weather. Scientific draft control burns damp, green or dry refuse without fire danger and nuisance of burning, blowing bits of paper, and minimizing smoke and smell. Made of rust-resistant aluminized steel, it features large hinged hood for easy loading and fire protection. Front casters swivel so unit may be pulled in any direction. The new unit, Model C10C, is 56" high and is 35" square at base.

INFRA-RED FIRE DETECTION SYSTEM

(Use Key # 645 on Inquiry Card on page 1)

AUTOMATIC Sprinkler Corp. of America has developed a new fire protection system for safeguarding machining operations on solid-fuel missile propellants. Using infra-red detection equipment, the system "sees" the first warmth from a fire—radiation from the first stages of decomposition from which a fire breaks out. The signal, amplified, detonates a tiny quantity of powder at the deluge valve and this miniature explosion triggers a water deluge on the protected machine.



NON-SLIP FLOOR MAT

(Use Key # 646 on Inquiry Card on page 1)

AN UNUSUAL link for floor mats permits an interlocking fabrication that provides stability of dimension in all directions. Made by American Mat Corp., the vinyl links, molded, rather than extruded, to give complete uniformity, are woven on a non-rust steel network. They are extremely durable, odorless, grease-resistant, and not subject to cracking or checking.

Known as the Sentinel entrance mat, it presents a non-slip surface for sure-footing under all conditions. Even the tiniest heels cannot catch in the opening. The mat will not skid on the floor. The new rib design affords easy cleaning. The mat rolls for ease of handling and is available in any size or shape, in any combination of 10 colors, including marbleized polychrome, and with any company name or insignia.

LIGHTER RIPPLE SOLES

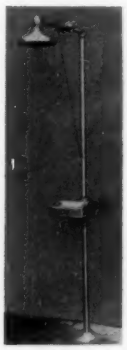
(Use Key # 647 on Inquiry Card on page 1)

A BRAND-NEW version of the Ripple Sole has been developed by the Ripple Sole Corporation. This new sole, called the Ripple Bantam-Rib Sole, is trimmer, 20% lighter, more flexible and versatile than the original Ripple Sole—yet is slip resistant and offers nearly all of its advantages. It is said to be setting a new trend in footwear styling.

NEW FLOOR MAINTENANCE LINE

(Use Key # 648 on Inquiry Card on page 1)

A COMPLETE line of flooring maintenance products specifically designed for use in commercial and institutional areas has been announced by the Armstrong Cork Company. In research for the past two years, the new line includes: heavy duty Commercial Floor Wax, a self-polishing, water emulsion polish based on a balanced blend of Carnauba wax with synthetic waxes and resins, durable and slip-resistant for all types of resilient floors; heavy duty Commercial Floor Finish, a water emulsion plastic floor polish, formulated for maximum gloss on all types of resilient flooring without buffing; Commercial Floor Cleaner, a concentrated solution of synthetic detergents and cleaning agents designed for the easy removal of dirt and wax accumulations, for resilient floorings. It contains no abrasives, free alkali, nor ammonia; is non-flammable and leaves no harmful deposits.



COMBINATION DRENCH SHOWER AND EYE-WASH FOUNTAIN

(Use Key # 649 on Inquiry Card on page 1)

A SAFETY shower with new "ratchet-type" valve operation has been combined with a new cast-aluminum emergency eye-wash fountain by the Haws Drinking Faucet Company. This Haws Model 8359 combines emergency body-drench and eye-wash facilities in a single, simplified unit. Vital first aid is provided, protecting against injury from contamination wherever caustic acids, volatile fuels or dangerous chemicals are manufactured or used. Units are furnished complete, as illustrated, ready for installation.

The "ratchet-type" quick opening ball valve on the drench shower is operated by a convenient nylon pull rope. A flood of water is released from the satin-chrome finish, 10" diameter, cast brass shower head. The valve stays open until the ratchet valve rope is pulled again. The eye-wash unit is a new design in polished, cast aluminum. Two chrome-plated brass fountain heads at each side are angled so that a controlled stream of water flushes directly into the patient's eyes. The "push-to-operate" ball valve opens instantly, remaining open until manually closed.

HEAT-RESISTANT FIBER

(Use Key # 650 on Inquiry Card on page 1)

AN ALL-ORGANIC, heat-resistant fiber which does not char or melt and retains flexibility and part of its strength after exposure to intense heat has been announced by Minnesota Mining & Mfg. Co. Called "Pluton" brand heat-resistant fiber, this product is available as a fabric, or can be worked into laminates reinforced with high-temperature phenolic resin to form structural parts or molding compounds. The fiber is entirely free of elemental carbon and conducts very little heat or electricity. Potential uses for the fabric include: light weight fire-protective curtains in public buildings, mines, steel mills; anti-arc wraps in power plants, etc. The fiber has been exposed in a plasma jet to temperatures up to 18,000 degrees F. without melting.

BUMP CAP FOR NON-DANGER AREAS

(Use Key # 651 on Inquiry Card on page 1)

LIGHTWEIGHT, resilient, and chemically resistant, a new protective headpiece has just been introduced by Mine Safety Appliances Co. The Bump Cap is specially designed for use in areas where there is no hazard of falling objects. It weighs less than seven ounces, has a two-inch square space for company or other insignia, and is available in white or yellow. Special colors may be obtained on request. The plastic bump cap is suitable for sports use, plant guards, Civil Defense personnel, and others requiring quick identification. Equipped with removable, adjustable suspension and a chin strap, the headwear is a valuable supplement to the firm's complete line of special head protection.

DUST MOP FIRE RETARDANT

(Use Key # 652 on Inquiry Card on page 1)

COMMERCIAL buildings, schools, hospitals, hotels, restaurants, etc., are protecting their buildings by fire-retarding their dust mops with "Life," a mop treatment developed and manufactured by National Chemsearch Corp. to eliminate spontaneous combustion from dust mops. The product not only fireretards the mops, but also reduces the danger of infection from dust-borne bacteria by attracting and holding dust particles in the mop. Said to be safe to use on all flooring surfaces as it contains no oil, does not evaporate, and is non-staining.

LOAD RELEASE SAFETY HOOK

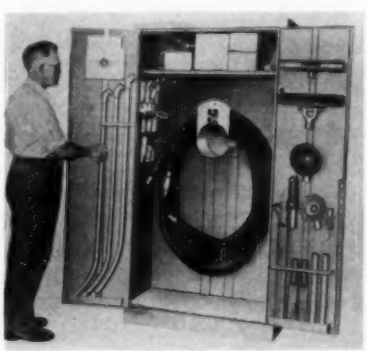
(Use Key # 653 on Inquiry Card on page 1)

A SAFE hook—that can be released while loaded, permitting the operator to stand clear and eliminating the hazards of unhooking live loads—is announced by Merrill Brothers. Positive lock prevents opening under any load conditions except when intentionally released by the pull ring. It combines quick use of conventional hook with safety of a shackle, without pin problems. Release-A-Matic Hook will fit practically any type of fitting, is light in weight, has a wide opening with small girth. It has been approved by the U. S. Navy for shipboard and amphibious use.

VACUUM HOSE AND TOOL CABINET

(Use Key # 654 on Inquiry Card on page 1)

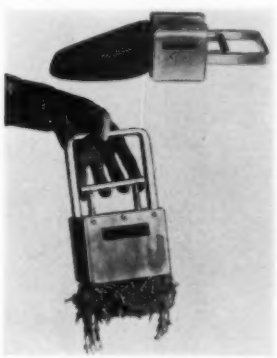
TO IMPROVE plant appearance and protect vacuum cleaning tools and accessories from loss or damage, the Hoffman Industries, Inc. is introducing a new equipment storage cabinet. It has a built-in rack to hold 100 feet 1½" or 75 feet of 2" hose, three curved floor rods, two wall rods, five fiber nozzles and short tubular rods, three 15" floor nozzles or three oblong wall brushes, three 8" hand brushes, five 3" to 6" hand nozzles, 6 hose couplings, reducers, connections, 2 elbow attachments plus spare parts and accessories. The cabinet, 40" wide x 78" high x 18" deep, is fabricated of #18 gauge welded and reinforced steel with a light green chip resistant enamel finish with storage shelf at the top. Built-in door pockets hold operator and maintenance instructions and illustrated tool sheets that provide easy identification. A combination door handle and lock give added protection.



VERSATILE HAND MAGNET

(Use Key # 655 on Inquiry Card on page 1)

A NEW manually-operated magnetic unit for handling small or large metal parts has been announced by the Magnetic Products Division, Jess Corporation. The versatile unit can also be used for feeding round, square, or irregularly-shaped sheets into presses, shears and similar production equipment. Also useful for small parts



packing, sorting, and weighing operations, the powerful hand magnet picks up and securely holds a quantity of loose nuts, bolts, screws or other light metal objects. A squeeze on the plunger-like handle instantly releases the parts. Heavier items such as blocks, dies, rods, etc., are also easily handled and a positive grip is assured even on wet, greasy, sharp, or hot metal objects.

The device effectively separates stacked metal sheets and is adjustable to accommodate various weights and thicknesses. It permits the machine operator to quickly grasp individual pieces. Pry marks and scratches on parts are eliminated, and hazard of injury to workers is reduced. Optional stainless steel strips offer extra protection against wear. Two compact models are available: a light unit which handles up to 3 lbs. of loose parts, or larger pieces to 30 lbs.; a heavy-duty unit with 5 lb. and 50 lb. capacities. For sheet separation, the two units will handle maximum thicknesses of 16 and 11 gauge. A stainless steel, tamper-proof case seals out dust, dirt and other foreign matter.

FOUR FIRST AID KITS

(Use Key # 656 on Inquiry Card on page 1)

A NEW industrial first aid kit is being sold by the American Optical Company's Safety Products Division. Four different kits are available for various size groups. The kits range in size from ones containing 10 first aid items to kits with 36 items. Designed to enable on-the-spot first aid, the kits are marked with large blaze-orange letters on charcoal gray cases for quick and easy identification. The kits are made of 20-gauge steel and have reinforced electrically-welded joints to provide contents maximum protection. Lids fit snugly to keep out dirt. A special rubber gasket keeps out moisture and water. Wall brackets, carrying handles and snap locks are built into each case. Among the items in the kits are compresses, bandages, antiseptic swabs, tourniquets, inhalants and burn salves.

ROCKET FUEL HANDLER'S SUIT

(Use Key # 657 on Inquiry Card on page 1)

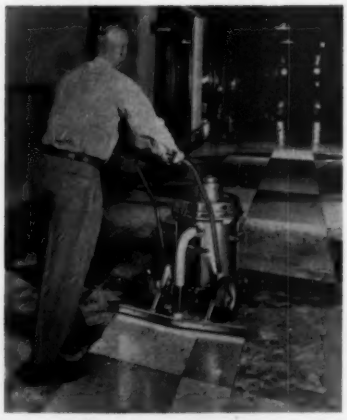
THREE TYPES of special polyvinyl cloth for protective clothing used in handling liquid-fueled rockets and missiles have been developed by Jomac Inc. Clothing from these materials have been tested and accepted for handling liquid oxygen, fuming nitric acid and hydrogen peroxide. Available in the form of coveralls with standard or pressure sealing zipper and in jackets with front or side zipper (for splash protection), and in pants, hoods, sleeves, or aprons. Number 5 North PVC cloth, in white only, is compounded especially for handling liquid oxygen. Numbers 1 and 3 North PVC cloth in black or white, provides protection against fuming nitric acid and hydrogen peroxide.

All three materials are coated on both sides. Numbers 1 and 5 cloth weigh 12 ounces per square yard. Number 3 cloth —designed for maximum protection— weighs 20 ounces per square yard. All three are easy to decontaminate. Number 5 withstands boiling at 212-degrees Fahrenheit and remains unusually flexible at minus 10-degrees F. The protective clothing is produced in all standard sizes and can be custom-made to customer specifications. All seams are sewn with synthetic thread, and electronically welded to provide maximum strength and protection against leakage. There are no exposed seams.

BARRIER CREAM PROTECTS AGAINST CUTTING OIL

(Use Key # 658 on Inquiry Card on page 1)

PROTECTION against the skin-irritating chemicals of cutting oil is provided by a barrier cream which provides invisible, glove-like protection. "Kerodex" 51, used for dry work, protects against the lubricating type of cutting oils. "Kerodex" 71, used for wet work, protects against the coolant type of oil. The creams can be applied one over the other for work using both types of oil, to protect against irritation and sensitivity. A worker benefit is faster wash-up, with no imbedded grime in the skin. The cream is distributed by Ayerst Laboratories, a Division of American Home Products Corp.



FLOOR SQUEEGEE ATTACHMENT

(Use Key # 659 on Inquiry Card on page 1)

BREUER Electric Mfg. Co. has introduced a new automatic floor squeegee for use on its 300 and 400 series vacuums. Called the Trot-Mop, it has a 30-inch spread and a large two-inch hose intake, resulting in fast action, wide track pick-up of any solution in one sweep. Easily attached behind rear wheels to eliminate wheel tracks.

FUSE ADAPTER REMOVER

(Use Key # 660 on Inquiry Card on page 1)

ACCORDING to the National Electrical Code, it is now mandatory to use non-tamperable, Type 'S' Plug Fuses on all new construction. When it is necessary for electrical contractors, electricians, power service men, etc., to remove or change Type 'S' Fuse Adapters, the new Trico "X-Tract-O" Tool does this job quickly, safely and inexpensively, without damage to the Edison base of fuse holders, cutouts, panelboards, etc. Made by Trico Fuse Mfg. Co., it is a small, self-contained tool, substantially built for long, trouble-free service.

DURABLE PLASTIC FLOOR FINISH

(Use Key # 661 on Inquiry Card on page 1)

A NEW plastic floor finish, developed through the combining of Polymers and Vinyls, to produce a faster drying, tougher and more durable surface, is announced by The Monroe Co., Inc. Containing no wax, Skid-Not is reported to provide its users with a positive, non-skid, tough finish that will not scuff or show foot marks. It will not react to any known floor material or affect the most delicate colors. The new product is approved by the Underwriters' Laboratories, is completely washable, and is not flammable. Reported to last 3 to 4 times longer than wax finishes, it is recommended for linoleum, rubber, cork, asphalt tile, terrazzo, magnesite and sealed wood floors.

BLACKTOP COATING RESISTS JET FUEL

(Use Key # 662 on Inquiry Card on page 1)

A NEW additive for Jennite J-16, fuel and weatherproof coating for blacktop pavements, is announced by Maintenance Inc. Known as AFR plus, it is for use in extra critical areas. The creamy copolymer

dispersion is readily blended with Jennite J-16 in the proportion of 1 to 3. The combination is reputed to provide maximum resistance to jet fuels and high aromatic content premium gasolines, and to give better cohesion and a tougher film.

Also announced is Jennite J-16-R (rubberized), a dispersion of unvulcanized rubberized coal tar pitch in water. It increases the sand retention properties for sand slurry surface treatments, providing greater wearability in critical, high traffic areas. Can be used directly on concrete and resists water absorption.

DISPOSABLE CLOTHING

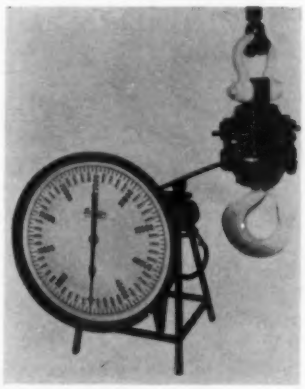
(Use Key # 663 on Inquiry Card on page 1)

ASSOCIATED Bag & Apron Co. announces the addition of disposable clothing to their line of protective clothing which can be worn, soiled and thrown away. According to the manufacturer, the cost is nominal and the material is resistant to most acids and alkalis, is dustproof, fire resistant, unaffected by oil or grease, waterproof and extremely lightweight. The material is non-woven and has the workability of cloth with the disposability of paper. It can be sewn, glued, dyed and printed. The clothing line includes aprons, sleeves, leggings, jackets and long coats.

BATTERY POWERED FLOORSWEEPERS

(Use Key # 664 on Inquiry Card on page 1)

A NEW LINE of battery powered floorsweepers has just been unveiled by Lambert Inc. Completely new in design and concept, the 24-volt system sweepers provide quiet, odorless power to the brushes. Designed for maneuverability, constantly rotating side brush permits sweeping along walls, around boxes and other obstacles. Exclusive "dustless sweeping" principle offers control of fine dust while heavier debris is swept into large steel hamper.



REMOTE INDICATING CRANE SCALES

(Use Key # 665 on Inquiry Card on page 1)

CAPACITY ranges from 500 to 60,000 lbs. are now available in the exclusive Martin-Decker Remote Indicating Crane Scales as well as in Standard Crane Scales. The new models feature minimum headroom loss, allowing greater stacking space in storage areas. The operator can read the dial at eye level while the load being weighed may be up to 100 feet away, even out of sight. All Scale dials are calibrated in uniform increments using the full 360° circumference of the dial. The scales conform to the accuracy specifications of the Bureau of Standards. Safety features include ultimate strength of more than 5 times rated capacity and a dial crystal of shatter-resistant optic plastic. Available with calibration units in pounds or kilograms, they include full tare adjustment so operator can easily zero out boxes, baskets, hooks, chains, etc.

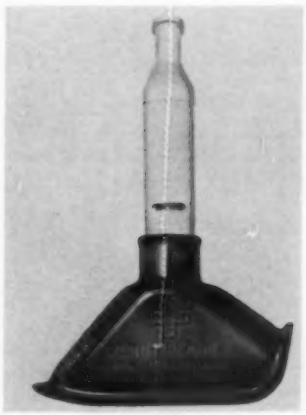
CALIBRATOR FOR SOUND METERS

(Use Key # 666 on Inquiry Card on page 1)

A NEW acoustic calibrator, requiring no source of power, is now available from the Korfund Company, Inc. The Type 1417 Acoustic Calibrator is produced by Dawe Instruments, Ltd. in England especially for American standards. Used for the periodic calibration of sound level meters, it assures that readings taken under different conditions are comparable. By a purely mechanical system of falling balls, the Calibrator produces a noise which covers a broad band of frequencies centered on 1500 c.p.s. A noise repeatable within ± 1 db, the minimum change in sound level which the human ear detects, is produced by the uniformity of the falling balls. In most cases, background noise has no effect since the unit produces a noise level as high as 90 db at 4 inches from the sound meter's microphone.

The unit is a cast aluminum housing with an upper and lower compartment

mounted in a yoke. Small balls in the upper compartment fall through a narrow aperture onto a diaphram, resulting in the calibrating noise. The balls then continue through a second aperture into a lower compartment. To operate, invert the unit. Temperature and/or humidity have negligible effects on performance. Compact unit weighs 1½ lbs.



ORAL RESUSCITATION DEVICE

(Use Key # 667 on Inquiry Card on page 1)

A SCIENTIFICALLY designed resuscitator that overcomes possible objection to mouth-to-mouth rescue breathing—physical contact—is now available from Mine Safety Appliances Co. The Venti-Breather is particularly suited for use on victims of drowning, suffocation, strangulation, shock, and other forms of normal breathing paralysis. Unit consists of a mouthpiece, breather tube, one-way valve, and flexible face mask. It is easy to use, and can be mounted to a wall in hospitals, public buildings, industrial plants, and lifeguard stations for instant use. Another model is in a compact case for a medicine cabinet, car glove compartment, beach bag, or emergency kit. A third unit is designed for training purposes. When the rescuer breathes into the mouthpiece, his breath passes through the breather tube, closing the exhaust vents, and inflates the victim's lungs. Then the one-way valve closes and the exhaust vents open. The victim's lungs deflate, and his exhaled breath is vented outward to the atmosphere.

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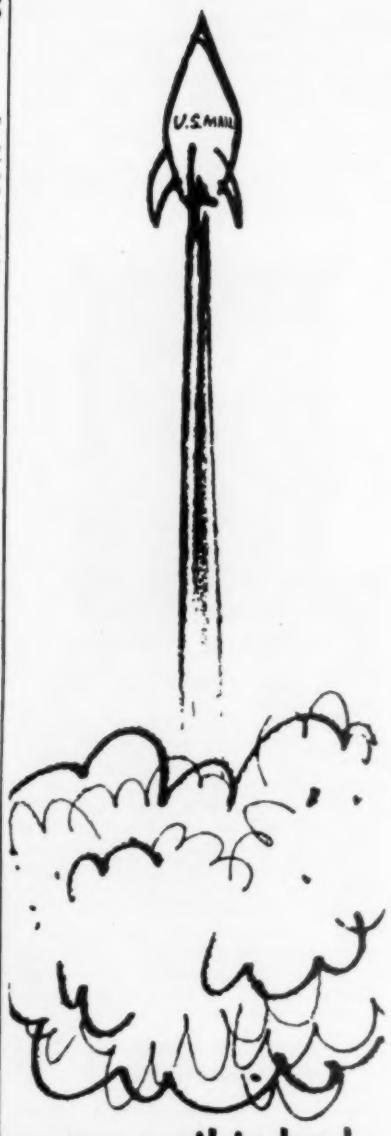

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YOUR SAFETY NEWS is a safety punching brochure that has become the official monthly house organ on safety for many prominent companies. This unique bulletin, with its diversified safety themes has been used successfully to create millions of safety-thinking employees all over the United States. It delivers down-to-earth safety hints with a **FRIENDLY NUDGE!**

IT HAS A LONG RANGE EFFECT ON YOUR SAFETY PROGRAM . . . By

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PREVENTING COSTLY WORK STOPPAGE by giving helpful safety tips designed to build in an awareness of hidden hazards.

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★ ***CLEVERLY ILLUSTRATES THE POINT***

Artwork is carefully chosen to lodge home each point persuasively. The cartoon style makes YOUR SAFETY NEWS as familiar and welcome as the picture packed Sunday supplement.

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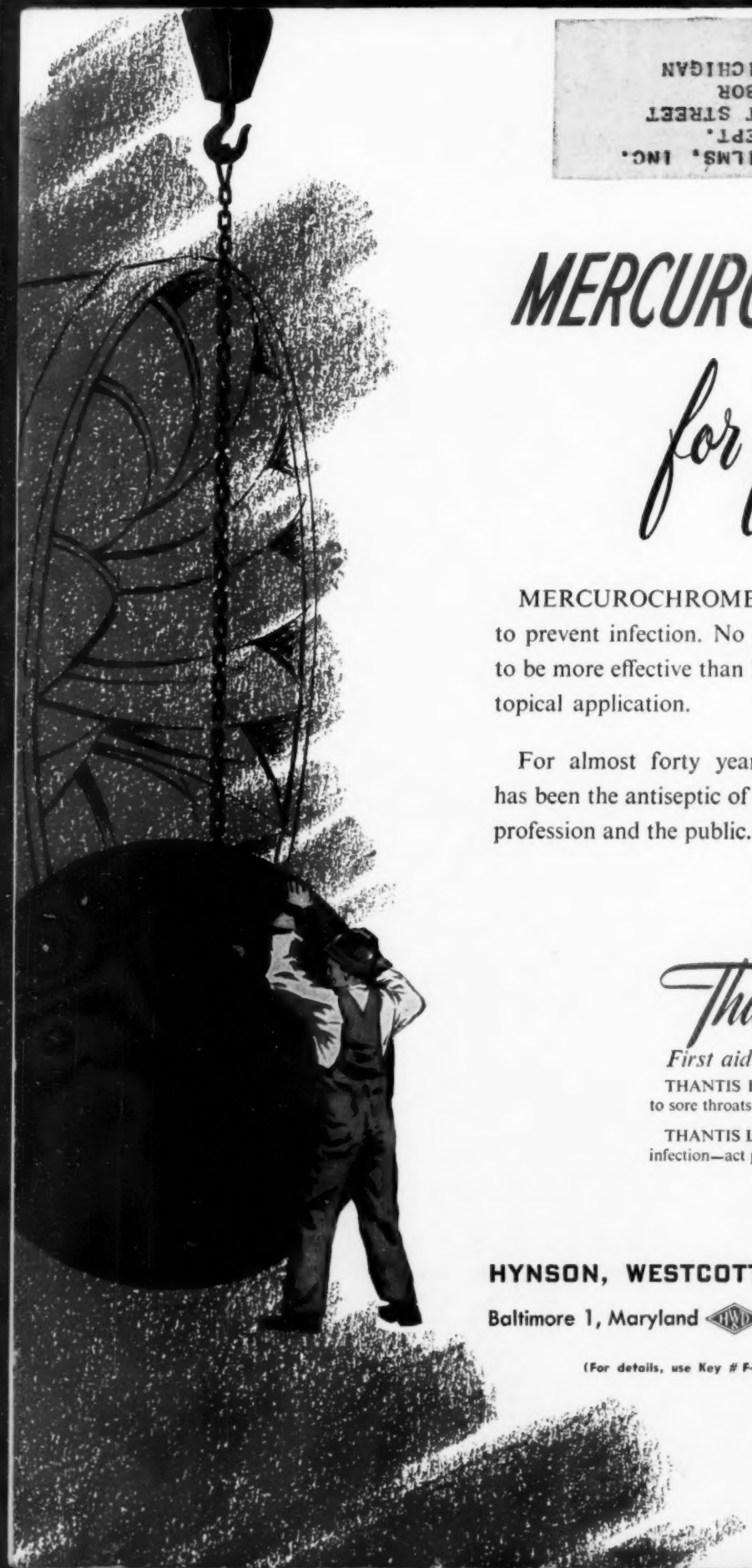

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(For details, use Key # F-20 on card on page1)